This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.08 MGD wastewater treatment plant. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective January 6, 2011) and updating permit language as appropriate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260 et seq.

1.	Facility Name and Mailing Address:	Colchester Utilities, Incorporated P. O. Box 379 Dunkirk, Maryland 20754	SIC Code :	4952 WWTP
	Facility Location:	10609 Greene Drive Lorton, VA 22079	County:	Fairfax
	Facility Contact Name:	Tony Sharp	Telephone Number:	410-286-5533
	Facility E-mail Address:	tlsharp@uiwater.com		
2.	Permit No.:	VA0029416	Expiration Date of previous permit:	June 24, 2013
	Other VPDES Permits associated with this facility:		Not Applicable	
	Other Permits associated with this facility:		Not Applicable	
	E2/E3/E4 Status:	Not Applicable		
3.	Owner Name:	Colchester Utilities, Inc.		
	Owner Contact/Title:	Tony Sharp, Regional Manager	Telephone Number:	410-286-5533
	Owner E-mail Address:	tlsharp@uiwater.com		
4.	Application Complete Date:	December 21, 2012		
	Permit Drafted By:	Joan C. Crowther	Date Drafted:	4/26/13
	Draft Permit Reviewed By:	Alison Thompson	Date Reviewed:	5/7/13
	WPM Review By:	Bryant Thomas	Date Reviewed:	5/13/13
	Public Comment Period :	Start Date: 7/25/13	End Date:	8/26/13

5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination dated October 31, 1994.

Receiving Stream Name :	Massey Creek	Stream Code:	MAE
Drainage Area at Outfall:	Tidal	River Mile:	0.76
Stream Basin:	Potomac River	Subbasin:	Potomac River
Section:	6	Stream Class:	II
Special Standards:	b, y	Waterbody ID:	VAN-A25E
7Q10 Low Flow:	Tidal	7Q10 High Flow:	Tidal
1Q10 Low Flow:	Tidal	1Q10 High Flow:	Tidal
30Q10 Low Flow:	Tidal	30Q10 High Flow:	Tidal
Harmonic Mean Flow:	Tidal	30Q5 Flow:	Tidal

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

- ✓ State Water Control Law
- ✓ Clean Water Act
- ✓ VPDES Permit Regulation
- ✓ EPA NPDES Regulation
- ✓ EPA Guidelines
- ✓ Water Quality Standards
- ✓ Other (*Policy for the Potomac Embayment* (9VAC25-415 et seq.*)

7. Licensed Operator Requirements: Class III

8. Reliability Class: Class I

9. Permit Characterization:

✓	Private		Effluent Limited		Possible Interstate Effect
	Federal	✓	Water Quality Limited		Compliance Schedule Required
	State		Whole Effluent Toxicity Program Required		Interim Limits in Permit
	POTW		Pretreatment Program Required		Interim Limits in Other Document
✓	TMDL				

*Historical Note - Development of the *Policy for the Potomac River Embayments* (9VAC25-415 *et seq.*):

The State Water Control Board adopted the Potomac Embayment Standards (PES) in 1971 to address serious nutrient enrichment problems evident in the Virginia embayments and Potomac River at the time. These standards applied to sewage treatment plants discharging into Potomac River embayments in Virginia and for expansions of existing plants discharging into the non-tidal tributaries of these embayments. The standards were effluent limitations for BOD, unoxidized nitrogen, total phosphorus, and total nitrogen:

Parameter	**PES Standard (monthly average)**
BOD_5	3 mg/L
Unoxidized Nitrogen	1 mg/L (April – October)
Total Phosphorus	0.2 mg/L
Total Nitrogen	8 mg/L (when technology is available)

Questions arose due to the fact that the PES were blanket effluent limitations that applied equally to different bodies of water. Therefore, in 1978, the State Water Control Board committed to reevaluate the PES. In 1984, a major milestone was reached when the Virginia Institute of Marine Science (VIMS) completed state-of-the-art models for each of the embayments. The Board then selected the Northern Virginia Planning District Commission (NVPDC) to conduct wasteload allocation studies of the Virginia embayments using the VIMS models. In 1988, these studies were completed and effluent limits that would protect the embayments and the main stem of the Potomac River were developed for each major facility.

In 1991 and 1992, several Northern Virginia jurisdictions with embayment treatment plants submitted a petition to the Board requesting that the Board address the results of the VIMS/NVPDC studies. Their petition requested revised effluent limitations and a defined modeling process for determining effluent limitations.

The recommendations in the petition were designed to protect the extra sensitive nature of the embayments along with the Potomac River that have become a popular recreational resource during recent years. The petition included requirements more stringent than would be applied using the results of the modeling/allocation work conducted in the 1980s. With the inherent uncertainty of modeling, the petitioners question whether the results of modeling would provide sufficient protection for the embayments. By this petition, the local governments asked for continued special protection for the embayments based upon a management approach that uses stringent effluent limits. They believed this approach had proven successful over the past two decades. In addition, the petition included a modeling process that would be used to determine if more stringent limits would be needed in the future due to increased wastewater discharges.

The State Water Control Board adopted the petition, with revisions, as a regulation on September 12, 1996. The regulation is entitled *Policy for the Potomac River Embayments* (PPRE)(9VAC25-415 *et seq.*). On the same date, the Board repealed the old PES. The new regulation became effective on April 3, 1997, and contained the following effluent limits:

Parameter	PPRE Standards (monthly average)
$cBOD_5$	5 mg/L
TSS	6 mg/L
Total Phosphorus	0.18 mg/L
Ammonia as Nitrogen	1.0 mg/L

10. Wastewater Sources and Treatment Description:

The Colchester Utilities Wastewater Treatment Plant is privately owned and operated by Colchester Utilities, Incorporated. The Plant serves the Harbor View subdivision consisting of 170 homes, located in southeast Fairfax County. It was originally built in 1963 for 0.04 MGD and expanded to 0.08 MGD in 1972.

The Plant has a design capacity of 0.08 MGD and treats wastewater through a combination of a biological treatment using extended aeration activated sludge process, aided by chemical treatment, followed by pressure filtration, chlorination and dechlorination, and post aeration.

Raw sewage enters a bar screen at the headworks and then is split between two parallel rectangular aeration basins aerated with diffused air. One aeration basin is followed by a rectangular clarifier, while the other by a circular clarifier. Lime is added to the aeration basins to adjust pH and to aid in settling. Ferric chloride is added at the end of the aeration process for phosphorus removal and polymer is fed to the clarifiers to aid in settling.

Effluent from clarifiers is collected in an equalization basin and pumped to the mixed media filters. The filtered effluent flows to a chlorine contact tank, where sodium hypochlorite is added for disinfection. The chlorine contact tank is baffled and equipped with air diffusers for aeration when needed. The effluent is dechlorinated with sodium bisulfite before being discharged to Massey Creek at Outfall 001.

Below is a facility flow diagram.

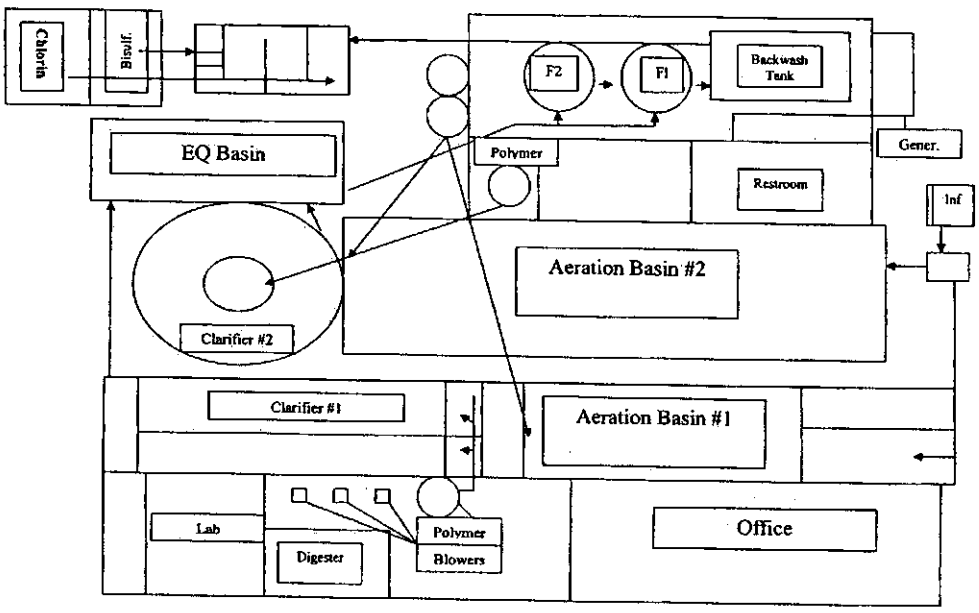
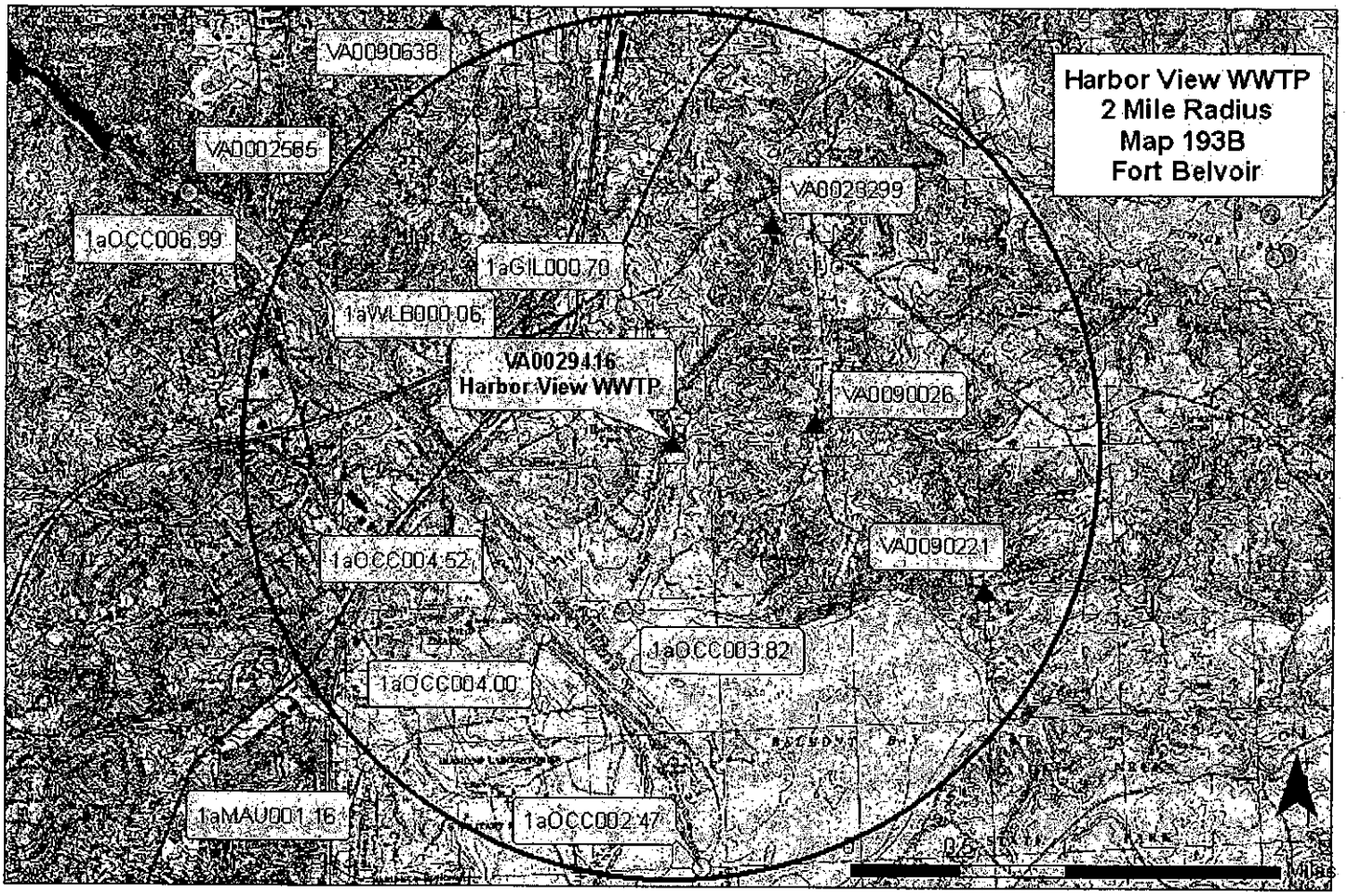


TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Design Flow(s)	Outfall Latitude and Longitude
001	Domestic Wastewater	See Item 10 above.	0.08 MGD	38° 40' 08" N 77° 13' 16" W

Colchester Utilities Incorporated (Harbor View WWTP) Location: USGS Topographic Map – Fort Belvoir; DEQ Topo Map No. 193B



11. Sludge Treatment and Disposal Methods:

The sludge from the facility is hauled to Noman M. Cole, Jr. Pollution Control Plant (VA0025364) and is incinerated. The contractor is Ashleys Septic Service, 1170 Mallard Road, Lorton VA 22079 (703) 550-5880.

12. Discharges, Intakes, Monitoring Stations, Other Items in Vicinity of Discharge

Table 2 – DEQ Monitoring Stations or VPDES Permit within a 2-mile radius of discharge point.

WQM Station or Permit No.	Description
1aGIL000.70	Giles Run, at Rt.#611, (Old Colchester Road)
1aWLB000.06	Mills Branch, at Occoquan Regional Park
1aOCC004.52	Occoquan River, at Daymarker # 15 (Green)
1aOCC004.00	Occoquan River, Dock at Belmont Marina (special study station)
1aOCC003.82	Occoquan River, near mouth of Massey Creek (special study station)
1aOCC002.47	Occoquan River/Belmont Bay, Daymarker #6 (Red), off Sandy Point
VA0023299	Gunston Elementary School, South Branch Massey Creek
VA0090026	Kim Young J Sewage Treatment Plant, Thompson's Creek, UT – Not Built Yet
VA0090221	George Mason University – Conference Center, Thompson's Creek – Not Built Yet

13. Material Storage:

TABLE 3 - Material Storage		
Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Lime	2,500 lbs. (50/50 lb bags)	Stored in Lime Storage Room
Ferric Chloride	2 X 750 gallons	Storage Tanks
Polymer	100 lbs.	Stored in garbage can in blower room
Sodium Bisulfite	100 gallons	Feed Shed
Sodium Hypochlorite	100 gallons	Feed Shed

14. Site Inspection:

Performed by Terry Nelson on March 18, 2008. (see Attachment 2)

15. Receiving Stream Water Quality and Water Quality Standards:

a) Ambient Water Quality Data

This facility discharges into Massey Creek, a tidal tributary to Occoquan Bay. There is no DEQ water quality monitoring station in Massey Creek. There are two DEQ special study stations in Occoquan Bay located close to Massey Creek. Station 1aOCC003.82 is located near the mouth of Massey Creek, but was only visited twice in 2005 for a PCB study. Station 1aOCC004.00 is located at the Belmont Marina dock, and was visited twice in 2007 for a continuous monitoring study. The nearest regular DEQ ambient monitoring station is 1aOCC004.52, located in the Occoquan Bay, approximately 1.5 miles from Outfall 001. This station is located approximately 0.8 miles upstream of the area Massey Creek enters Occoquan Bay and was last monitored in August 2012. The following is the water quality summary for this tidal portion of the Occoquan Bay, as taken from the Draft 2012 Integrated Assessment*:

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. SPMD data revealed an exceedance of the human health criteria of 0.64 parts per billion (ppb) polychlorinated biphenyls (PCBs) at station 1aOCC003.82, which is noted by an observed effect. A PCB TMDL for the tidal Potomac River watershed has been completed and approved.

The aquatic life use is fully supporting. A TMDL has been completed for the Chesapeake Bay watershed. The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subuse; the thirty day mean is acceptable, however, the seven day mean and instantaneous levels have not been assessed.

The wildlife use is considered fully supporting. The recreation use was not assessed.

* *Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.*

The rest of this page is intentionally left blank.

b) 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

303(d) Impairment and TMDL information for the receiving stream segment

*Impairment Information in the DRAFT 2012 Integrated Report**						
Waterbody Name	Impaired Use	Cause	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Occoquan Bay/Massey Creek	Fish Consumption	PCBs	Tidal Potomac PCB 10/31/2007	None	N/A	---

** Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.*

Information on Downstream 303(d) Impairments and TMDLs

*Impairment Information in the DRAFT 2012 Integrated Report**							
Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Occoquan Bay	Aquatic Life	Estuarine Bioassessments	2.0 miles	No	N/A	N/A	2018

** Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.*

The DEQ planning statement dated April 16, 2013 is found in Attachment 3.

c) Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream Massey Creek is located within Section 6 of the Potomac River Basin, and classified as a Class II water.

Class II tidal waters in the Chesapeake Bay and it tidal tributaries must meet dissolved oxygen concentrations as specified in 9VAC25-260-185 and maintain a pH of 6.0-9.0 standard units as specified in 9VAC25-260-50. In the Northern Virginia area, Class II waters must meet the Migratory Fish Spawning and Nursery Designated Use from February 1 through May 31. For the remainder of the year, these tidal waters must meet the Open Water use. The applicable dissolved oxygen concentrations are presented in the following table.

The rest of this page is intentionally left blank.

Dissolved Oxygen Criteria (9VAC25-260-185)

Designated Use	Criteria Concentration/Duration	Temporal Application
Migratory fish spawning and nursery	7-day mean > 6 mg/L (tidal habitats with 0-0.5 ppt salinity)	February 1 – May 31
	Instantaneous minimum > 5 mg/L	
Open-water[1]	30-day mean > 5.5 mg/L (tidal habitats with 0-0.5 ppt salinity) 30-day mean > 5 mg/L (tidal habitats with >0.5 ppt salinity)	Year-round
	7-day mean > 4 mg/L	
	Instantaneous minimum > 3.2 mg/L at temperatures < 29°C Instantaneous minimum > 4.3 mg/L at temperatures > 29°C	

[1]In applying this open-water instantaneous criterion to the Chesapeake Bay and its tidal tributaries where the existing water quality for dissolved oxygen exceeds an instantaneous minimum of 3.2 mg/L, that higher water quality for dissolved oxygen shall be provided antidegradation protection in accordance with section 30 subsection A.2 of the Water Quality Standards.

The 2013 Freshwater Water Quality/Wasteload Allocation Analysis (Attachment 4) details other water quality criteria applicable to the receiving stream. The receiving stream is considered tidal. Based on documentation in previous permit reissuances, a zero dilution factor has been determined for this discharge. See Attachment 1. Therefore, no stream flow was used in the analysis. In these spreadsheets, stream and effluent pH, temperature, and hardness values are the same and represent what is expected to be or is the actual effluent values. The analysis was divided into two seasons; namely, April – October and November – March. This was done because the PPRE's ammonia effluent limitation was established as seasonal (April – October).

1) Basis for Effluent pH and Temperature:
Effluent data between January 2010 and September 2012 was reviewed and used to determine the 90th percentile for pH and temperature. (See Attachment 6 for pH and temperature data.)

Season	90th Percentile pH (SU)	90th Percentile Temperature °C)
Annual	7.5	25.8
April – October	7.5	25.8
November – March	7.6	15.9

2) Basis for Effluent Total Hardness:
In the 2003 permit reissuance, a total hardness value of 290 mg/L as $CaCO_3$ was reported on the permit application EPA Form 2A. No additional hardness testing has been conducted at the facility. This hardness value will be carried forward this permit reissuance.

Ammonia:
The ammonia effluent limitation for April 1st through October 31st is set by the *Policy for the Potomac River Embayments* (9VAC25-415-40). During this period, the monthly average ammonia effluent limit is 1.0 mg/L. A multiplier of 1.5 is applied to the monthly average to obtain the weekly average in accordance with DEQ and EPA practice in establishing effluent limitations.

During the 1998 VPDES permit process, the existing ammonia effluent limitations for November through March were determined and have been carried forward since then. Effluent pH data from November 1994

through April 1997 and temperature data from November 1993 through April 1997 were used to determine the pH and temperature 90th percentiles. The pH and temperature 90th percentile values for the months of April through October were 7.8 SU and 24.2°C, respectively. The pH and temperature 90th percentile values for the months of November through March were 7.8 SU and 17.2°C, respectively. This effluent data can be found in Attachment 5. The ammonia as N criteria were determined as follows:

	Acute	Chronic
April – October	7.8 mg/L	1.78 mg/L
November – March	7.9 mg/L	1.80 mg/L

Resulting in the following ammonia as N effluent limitations:

	Monthly Ave	Weekly Max
April – October	2.0 mg/L	2.6 mg/L
November – March	2.0 mg/L	3.6 mg/L*

* This limit was changed in the 2003 reissuance to 2.6 mg/L by replacing a daily max value for a weekly max value.
(See Attachment 5 for the 2003 permit reissuance ammonia calculations).

The staff re-evaluated pH and temperature of the facility (January 2010 and September 2012) to determine if the ammonia effluent limitations for the period of November 1st through March 31st were still appropriate. Due to the VA Water Quality Standards' Potomac River Special Standard y applicable to this stream segment, the chronic ammonia criterion is calculated using the formula contained within the special standard for the period of November through February 14th. Because effluent parameters are normally determined for the entire month, not partial a month, staff has applied Special Standard y ammonia limit seasons as follows: April – October (PPRE); November – January ("y" – No early life stages present); and February – March (Early life stages present.). This is a more conservative approach since early life stages may be present at the end of February and since ammonia is a 30-day criterion, the special standard y is pushed back to the end of January. (See Attachment 7 for 2013 Calculation for Potomac River Special Standard y.) The ammonia as N criteria were determined as follows:

	Acute	Chronic	Chronic Per Special Standard y
April – October	19.9 mg/L	2.11 mg/L	
November – January	170 mg/L	3.71 mg/L	2.62 mg/L
February - March	230 mg/L	4.33 mg/L	

Resulting in the following ammonia as N effluent limitations:

	Monthly Ave	Weekly Max
April – October	2.3 mg/L	3.1 mg/L
November – January	2.9 mg/L	3.9 mg/L
February – March	4.8 mg/L	6.4 mg/L

As previous stated the ammonia effluent limitation for April 1st through October 31st is set by the *Policy for the Potomac River Embayments* (9VAC25-415-40). During this period, the monthly average ammonia effluent limit is 1.0 mg/L. A multiplier of 1.5 is applied to the monthly average to obtain the weekly average in accordance with DEQ and EPA practice in establishing effluent limitations.

The November – January ammonia effluent limitations will be revised in accordance with Potomac River Special Standard y, namely the monthly average will be 2.9 mg/L with a weekly max of 3.9 mg/L.

The February - March ammonia effluent limitation will be changed to a monthly average of 4.8 mg/L and weekly max of 6.4 mg/L. This change resulted in the re-evaluation of the effluent temperature and pH values for the period of January 2010 through September 2012. (See Attachment 6 for 2013 ammonia calculations.)

Metals Criteria:
The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (expressed as mg/l calcium carbonate). In the 2003 permit reissuance, a total hardness value of 290 mg/L as $CaCO_3$ was reported on the permit application EPA Form 2A. No additional hardness testing has been conducted at the facility. This hardness value will be carried forward this permit reissuance.

Bacteria Criteria:
The Virginia Water Quality Standards at 9VAC25-260-170A state that the following criteria shall apply to protect primary recreational uses in surface waters:

> *E. coli* bacteria per 100 ml of water shall not exceed a monthly geometric mean of 126 n/100 mls for a minimum of four weekly samples taken during any calendar month.

d) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Massey Creek, is located within Section 6 of the Potomac River Basin. This section has been designated with a special standard b and y.

Special Standard "b" (Potomac Embayment Standards) established effluent standards for all sewage plants discharging into Potomac River embayments and for expansions of existing plants discharging into non-tidal tributaries of these embayments. 9VAC25-415, Policy for the Potomac Embayments controls point source discharges of conventional pollutants into the Virginia embayment waters of the Potomac River, and their tributaries, from the fall line at Chain Bridge in Arlington County to the Route 301 Bridge in King George County. The regulation sets effluent limits for $cBOD_5$, total suspended solids, phosphorus, and ammonia, to protect the water quality of these high profile waterbodies.

Special Standard "y" is the chronic ammonia criterion for tidal freshwater Potomac River and tributaries that enter the tidal freshwater Potomac River from Cockpit Point (below Occoquan Bay) to the fall line at Chain Bridge. During November 1 through February 14 of each year the thirty-day average concentration of total ammonia nitrogen (in mg N/L) shall not exceed, more than once every three years on the average the following chronic ammonia criterion:

$$\left(\frac{0.0577}{1 + 10^{7.688-pH}} + \frac{2.487}{1 + 10^{pH-7.688}} \right) \times 1.45(10^{0.028(25-MAX)})$$

MAX = temperature in °C or 7, whichever is greater.

The default design flow for calculating steady state waste load allocations for this chronic ammonia criterion is the 30Q10, unless statistically valid methods are employed which demonstrate compliance with the duration and return frequency of this water quality criterion.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1. The critical flows for the stream are zero and at times the stream flow is comprised of only effluent. It is staff's best professional judgment that such streams are Tier 1. Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) is calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:
Effluent data obtained from Discharge Monitoring Reports (DMRs) from January 2008 through January 2013 has been reviewed and determined to be suitable for evaluation. The following exceedances were reported on the DMRs:

Ammonia as N: June 2008; September and December 2011; and August 2012
$cBOD_5$: October 2008 and December 2011
DO: January 2010
Total Phosphorus: June 2009
pH: June 2008
Cl_2: June 2008

The following pollutants require a wasteload allocation analysis: Ammonia as N and TRC.

b) Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:
- WLA = Wasteload allocation
- C_o = In-stream water quality criteria
- Q_e = Design flow
- Q_s = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
- f = Decimal fraction of critical flow
- C_s = Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to be tidal and no dilution factor is allowed. As such, there is no mixing zone and the WLA is equal to the C_o.

c) Effluent Limitations Toxic Pollutants, Outfall 001 –

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N:

The ammonia effluent limitation for April 1st through October 31st is set by the *Policy for the Potomac River Embayments* (9VAC25-415-40). During this period, the ammonia effluent limit is 1.0 mg/L. A multiplier of 1.5 is applied to the monthly average to obtain the weekly average in accordance with DEQ and EPA practice in establishing effluent limitations.

The staff re-evaluated pH and temperature of the facility (January 2010 and September 2012) to determine if the ammonia effluent limitations for the period of November 1st through March 31st were still appropriate and in accordance with Potomac River Special Standard y. This evaluation shown that the November – January ammonia effluent limitations should be revised, namely the monthly average should be 2.9 mg/L with a weekly max of 3.9 mg/L. The February - March ammonia effluent limitation should be revised to a monthly average of 4.8 mg/L and weekly max of 6.4 mg/L. (See Attachment 6 for 2013 ammonia calculations.)

2) Total Residual Chlorine:

Chlorine is used for disinfection and is potentially in the discharge. Staff calculated WLAs for TRC using current critical flows and the mixing allowance. In accordance with current DEQ guidance, staff used a default data point of 0.2 mg/L and the calculated WLAs to derive limits. A monthly average of 0.007 mg/L and a weekly average limit of 0.008 mg/L are proposed for this discharge (see Attachment 8).

3) Metals/Organics:

No metals or organics data were available for review; therefore, no effluent limits are proposed.

d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), carbonaceous biochemical oxygen demand-5 day ($cBOD_5$), total suspended solids (TSS), Ammonia as N (April through October), and pH limitations are proposed. Changes to the Ammonia as N (November through January) and Ammonia as N (February – March) effluent limitations are proposed in accordance with the Potomac River Special Standard y and the re-evaluation of the effluent temperature and pH data.

$cBOD_5$, TSS, Ammonia (April – October) and TP limitations are based on the *Policy for the Potomac River Embayments* (9VAC25-415 *et.seq.*).

D.O.,Ammonia as N (November – March) and Ammonia as N (February – March) limitations are based on Water Quality Standards.

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards 9VAC25-260-170.

Total Nitrogen, TKN, and $NO_3 + NO_2$ monitoring was continued from the previous permit based on staff's best professional judgment so that should the facility expand in the future this information would be helpful in determining future effluent limitations.

e) Effluent Limitations and Monitoring Summary.

The effluent limitations are presented in the following table. Limits were established for Flow, $cBOD_5$, Total Suspended Solids, Ammonia as N, pH, Dissolved Oxygen, Total Residual Chlorine, *E.coli*, and Total Phosphorus.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for $cBOD_5$ and TSS (or 65% for equivalent to secondary). The limits in this permit are water-quality-based effluent limits and result in greater than 85% removal.

18. Antibacksliding:

During this permit reissuance, the tier effluent limitations for Ammonia as N were changed to be consistent with the Virginia Water Quality Standards (9VAC25-260 et seq. effective January 6, 2011). 9VAC25-260-310y determines how the chronic ammonia criterion is to be calculated for months of November through February 14th. Previous permit reissuances had not applied this special standard to this facility. Ammonia as N tier effluent limitations in this reissuance will comply with both the *Policy of the Potomac River Policy* and VA Water Quality Standards' Potomac River Special Standard y. Antibacksliding of these limitations is in accordance with the Clean Water Act, Section 402(o) (2) (B) (i) which states antibacksliding can occur when it is determined that information is available which was not available at the time of the permit issuance and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

The rest of this page is intentionally left blank.

19. Effluent Limitations/Monitoring Requirements:

Design flow is 0.08 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	Continuous	TIRE
pH	3	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
$cBOD_5$	1	5 mg/L 1.5 kg/day	8 mg/L 2.3 kg/day	NA	NA	3D/W	8H-C
Total Suspended Solids (TSS)	1	6.0 mg/L 1.8 kg/day	9.0 mg/L 2.7 kg/day	NA	NA	3D/W	8H-C
Total Kjeldahl Nitrogen	2,5	NL (mg/L) NL (kg/day)	NL (mg/L) NL (kg/day)	NA	NA	1/M	8H-C
Dissolved Oxygen (DO)	3	NA	NA	6.0 mg/L	NA	1/D	Grab
Ammonia, as N (April-Oct)	1	1.0 mg/L 0.30 kg/d	1.5 mg/L 0.45 kg/d	NA	NA	3D/W	8H-C
Ammonia, as N (Nov-Jan)	3	2.9 mg/L	3.9 mg/L	NA	NA	3D/W	8H-C
Ammonia, as N (Feb - March)	3	4.8 mg/L	6.4 mg/L	NA	NA	3D/W	8H-C
E. coli (Geometric Mean)	3	126 n/100mls	NA	NA	NA	1/W	Grab
Total Residual Chlorine (after contact tank)	2, 3, 4	NA	NA	1.0 mg/L	NA	3/D at 4-hr Intervals	Grab
Total Residual Chlorine (after dechlorination)	3	0.007 mg/L	0.008 mg/L	NA	NA	3/D at 4-hr Intervals	Grab
Total Phosphorus	1	0.18 mg/L 0.05 kg/d	0.27 mg/L 0.08 kg/d	NA	NA	3D/W	8H-C
Total Nitrogen[a]	2, 5	NL (mg/L)	NA	NA	NA	1/M	Calculated
NO_2+NO_3 as Nitrogen	2, 5	NL (mg/L)	NA	NA	NA	1/M	8H-C

The basis for the limitations codes are:

1. *Policy for the Potomac River Embayments* (9VAC25-415 *et seq)*
2. Best Professional Judgement
3. Water Quality Standards
4. DEQ Disinfection Guidance
5. 9VAC25-40 (Nutrient Regulation)

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
3/D = Three per day.
3D/W = Three days a week
1/W = Once a week.
1/M = Once a month.

8H-C = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the Monitored 8-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of eight (8) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum eight (8) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by ≥10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

[a] Total Nitrogen = Sum of TKN plus Nitrate+Nitrite

20. Other Permit Requirements:

a) Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels and compliance reporting instructions.

These additional chlorine requirements are necessary per the Sewage Collection and Treatment Regulations at 9VAC25-790 and by the Water Quality Standards at 9VAC25-260-170. A minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more that 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be <1.0 mg/L with any TRC <0.6 mg/L considered a system failure. Monitoring at numerous STPs has concluded that a TRC residual of 1.0 mg/L is an adequate indicator of compliance with the *E. coli* criteria. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream

excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

21. Other Special Conditions:

a) 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. The facility is a PVOTW.

b) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. The permittee shall maintain a current Operations and Maintenance (O&M) Manual. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

c) Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200 B.1 and B.2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

d) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

e) Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200 C, and Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class III operator.

f) Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class of I.

g) Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

h) Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2., and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

i) Nutrient Offsets. The Virginia General Assembly, in their 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers, which are captured by the requirements of the law, including the requirement that non-point load reductions acquired for the purpose of offsetting nutrient discharges be enforced through the individual VPDES permit.

k) Nutrient Reopener. 9VAC25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

l) TMDL Reopener: This special condition is to allow the permit to be reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

22. Changes to the Permit from the Previously Issued Permit:

a) Special Conditions:
   1) Water Quality Criteria Reopener Special Condition was removed in this reissuance process.
   2) The Nutrient Offsets Special Condition was added in this reissuance process so that the permittee is aware of the nutrient requirements should the facility's design flow is increased in the future.

b) Monitoring and Effluent Limitations:
   1) The Ammonia as N November through March seasonal tier effluent limitations were changed to comply with the Virginia Water Quality Standards Special Standard y. New effluent limitations for November through February and March were calculated and placed in the proposed draft permit.
   2) The Total Residual Chlorine effluent limitations after dechlorination were calculated without rounding to the nearest hundredth.

23. Variances/Alternate Limits or Conditions:

There are no variances/alternate limits or conditions contained in this permit.

24. Public Notice Information:

First Public Notice Date: Second Public Notice Date:

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3925, joan.crowther@deq.virginia.gov. See Attachment 9 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

25. Additional Comments:
Previous Board Action(s): None.

Staff Comments: None.

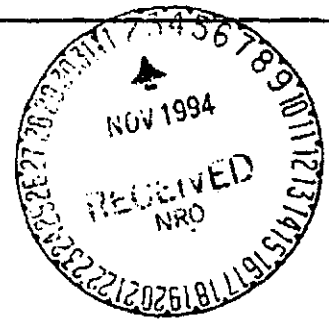
Public Comment: This reissuance was first public noticed on June 13, 2013 in the "Connection Newspaper"; however, the second consecutive public notice was not published. Therefore, the public notice was readvertised on July 25, 2013 with the second public notice on August 1, 2013. The public comment period closed on August 26, 2013. No comments were received during the public notice.

VA0029416 Colchester Utilities, Inc. WWTP Fact Sheet Attachments

Attachment	Description
1	Flow Frequency Determination Memo dated October 31, 1994
2	Site Inspection by DEQ Staff on March 18, 2008
3	DEQ Planning Statement dated April 16, 2013
4	2013 Freshwater Water Quality Criteria/Wasteload Allocated Analysis dated May 23, 2013
5	1998 and 2003 Ammonia Analysis and associated pH and temperature data
6	2013 Ammonia Analysis and associated pH and temperature data
7	2013 Calculation for Potomac River Special Standard y
8	Total Residual Chlorine Analysis
9	Public Notice

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240



SUBJECT: Flow Frequency Determination
Harborview STP - #VA0029416

TO: Lyle Anne Collier, NRO

FROM: Paul Herman, OWRM-WQAP

DATE: October 31, 1994

COPIES: Ron Gregory, Charles Martin, Dale Phillips, Curt Wells, File

This memo replaces my memo to you dated December 10, 1993.

The Harborview STP discharges to the Massey Creek near Woodbridge, VA. Flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

The values at the discharge point were determined by inspection of the USGS Fort Belvoir Quadrangle topographical map and by review of data collected by the permit writer during a site visit which depicted the receiving stream as tidal at the discharge point with no evidence of freshwater inflow upstream of the outfall. The flow frequencies for tidal streams or tidal embayments are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10 and the harmonic mean. The drainage area above the discharge site is 0.0 mi^2.

If you have any questions concerning this analysis, please let me know.

Attachment 1

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE

1549 Old Bridge Road, #108 Woodbridge, Virginia 22192 (703) 490-8922

SUBJECT: Request for Assistance in Calculating Ammonia Limits for Harborview Sewage Treatment Plant, VA0029416

TO: M. Dale Phillips, OWRM-Permits, Innsbrook

FROM: Lyle Anne Collier *LAC*

DATE: November 10, 1994

COPIES: file

Dale,

Harborview is a 0.08 MGD tertiary treatment plant that discharges to Massey Creek (small tidal creek, tributary to the Occoquan River/Belmont Bay) in Fairfax County. Harborview is subject to the Potomac Embayment Standards. The permit expired May 15, 1991, and has been administratively continued since that date.

I am in the process of calculating ammonia limits for Harborview. Based on a site inspection conducted in October, 1994, I discovered that there are two arms of Massey Creek and they are not connected as represented on the topo map.

Harborview STP discharges to the headwaters of one of these arms. There is no freshwater input. This channelized arm of Massey Creek joins the mainstem of Massey Creek approximately 0.4 miles downstream. The receiving stream at the point of discharge is approximately 8 - 9 feet deep and 40 - 50 feet wide. The arm widens to approximately 200 feet.

I do not believe that the default dilution ratio of 50:1 for the Chronic Wasteload Allocation is appropriate in this case and I am considering using a zero dilution factor. What do you recommend?

I have included copies of the topo map, ADC Street map and the flow frequencies. If you have any questions or need more information, please call me at (703) 490-7331.

Thanks for your help.

11/17/94

Lyle,

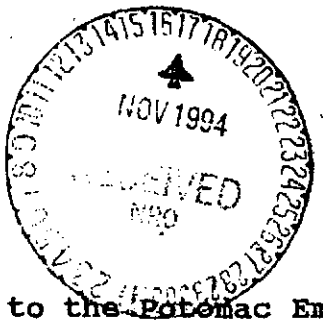
Welcome to the PES quagmire. Dale's answer addresses the current version of PES; the pending (!?) version would have us put in the winter ammonia limit. It won't surprise me if Jean comes up with another interpretation.

I recommend that a zero dilution factor be used for Harbor View.

Tom

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
Water Division
4900 Cox Road P.O.Box 10009 Glen Allen, Virginia 23240

MEMORANDUM



Subject: Harborview STP - VA0029416
To: Lyle Anne Collier
From: M. Dale Phillips
Date: November 16, 1994
Copies: Fred Holt, Jean Gregory

As you indicated this 0.08 MGD STP is subject to the Potomac Embayment Standards (PES). Those standards directly specify the quality that effluents must meet and I do not believe any additional requirements, for the parameters addressed by the PES, are necessary nor would they be legal. For example, we cannot require the STP's that are subject to the PES to attain phosphorus concentrations below 0.2 ppm even though it has been demonstrated that a concentration less than 0.2 ppm is necessary to control eutrophication and even though the STP's concerned are voluntarily attaining a lower concentration.

The PES require that unoxidized nitrogen be maintained, in the effluent, at levels of 1.0 ppm or less during the period April 1 - October 31. There is no other requirement. Since ammonia is an unoxidized nitrogen compound, the PES do address ammonia via this parameter. Since the receiving stream is tidal some dilution of the effluent will occur. However, we do not have adequate technical tools with which to demonstrate exactly how much dilution will occur or where it will occur and therefore have no basis to suspect that the PES are not adequate.

My personal judgement is that if a plant of this small size meets an unoxidized nitrogen (TKN) requirement of 1.0 ppm then we do not have to be concerned that ammonia will be present in concentrations sufficiently high to result in any toxicity. Further, during the period when the unoxidized nitrogen limit is not required the temperature should be low enough, even with limited tidal flushing, to avoid toxic impacts from this very small discharge.

By copy of this memorandum, I am asking Jean Gregory to comment on the issues raised. Specifically, how should we deal with the larger STPs that may violate the ammonia standard if they discharge unoxidized nitrogen as specifically allowed by the PES (including the tiering).

Recommendations for Harborview STP only:

I would recommend that the permit limits be taken directly from the PES for all parameters addressed by them to avoid legal entanglements.

Specifically, the limit to control the discharge of ammonia should be in terms of unoxidized nitrogen (or TKN defined as unoxidized nitrogen) and should be 1.0 ppm for the period specified in the PES.

March 27, 2008

Mr. Doug Hartline
Colchester Public Service Corporation
10609 Greene Drive
Lorton, VA 22079

Re: Harborview STP Inspections, Permit VA0029416

Dear Mr. Hartline:

Enclosed are copies of the technical and laboratory inspection reports generated from observations made while performing a Facility Technical Inspection at the Harbor View Sewage Treatment Plant on March 18, 2008. The compliance staff would like to thank your staff for their time and assistance during the inspection.

Summaries for both the technical and laboratory inspections are enclosed. The facility had Deficiencies for the laboratory inspection. Please submit in writing a progress report to this office by **April 17, 2008** for the items addressed in the summary. Your response may be sent either via the US Postal Service or electronically, via E-mail. If you chose to send your response electronically, we recommend sending it as an Acrobat PDF or in a Word-compatible, write-protected format. Additional inspections may be conducted to confirm the facility is in compliance with permit requirements.

If you have any questions or comments concerning this report, please feel free to contact me at the Northern Virginia Regional Office at (703) 583-3833 or by E-mail at twnelson@deq.virginia.gov.

Sincerely,

Terry Nelson
Environmental Specialist II

cc: Permits / DMR File
Compliance Manager
Compliance Auditor
Compliance Inspector
OWCP – SGStell

Attachment 2

Summary of conditions from last inspection (January 25, 2005)

Problem identified	Corrected	Not Corrected
1. Circular clarifier had multiple overflow notches blocked by solids	[**X**]	[ ]

Summary of conditions for current inspection

Comments:

- The facility is well maintained and operated.
- The clarifier solids and scum were removed by vacuum truck during the inspection.
- Ferric chloride pumps are now located in a small plastic box adjacent to the feed tanks.

Recommendations for action:

- No recommendations on the physical operations of the facility.

LABORATORY INSPECTION REPORT SUMMARY

FACILITY NAME: Harbor View STP	FACILITY NO: VA0029416	INSPECTION DATE: March 18, 2008
(X) Deficiencies	( ) No Deficiencies	

LABORATORY RECORDS

The Laboratory Records section had **No Deficiencies** noted during the inspection.

GENERAL SAMPLING AND ANALYSIS

The General Sampling and Analysis section had **Deficiencies** noted during the inspection.

Recommendation:

- Please remind the lab that Nitrite and CBOD samples must be processed within 48 hours of collection.

Deficiency:

1. Ortho-phosphate samples must be filtered within 15 minutes of sample collection.

LABORATORY EQUIPMENT

The Laboratory Equipment section had **No Deficiencies** noted during the inspection.

QUALITY ASSURANCE & QUALITY CONTROL

The Quality Assurance & Quality Control section had **Deficiencies** noted during the inspection.

Deficiencies:

1. Section 1020.B.6 of Standard Methods 18th edition requires the duplicate analysis of 5% or more of samples.
2. Section 1020.B.1 of Standard Methods 18th edition requires certification of operator competence.

Information for resolving these deficiencies can be found at http://www.deq.virginia.gov/vpdes under the 09/27/07 FAQ.

INDIVIDUAL PARAMETERS

pH

The analysis for the parameter of pH had **Deficiencies** noted during the inspection.

Deficiency:

1. The pH calibration must be verified by measuring a pH buffer as if it were a sample and meeting the $\pm$ 0.1 SU criteria.

DO

The analysis for the parameter of Dissolved Oxygen (DO) had **No Deficiencies** noted during the inspection.

TRC

The analysis for the parameter of Total Residual Chlorine (TRC) had **Deficiencies** noted during the inspection.

Deficiency:

1. Staff analyzes all samples using high range. A review of on-line manuals for the Hach DR 2500 does not show any approved method that utilizes high range. All approved methods say dilute samples and use 0.02 to 2.00 mg/L range.

DEQ
WASTEWATER FACILITY INSPECTION REPORT
PREFACE

VPDES/State Certification No.	(RE) Issuance Date	Amendment Date	Expiration Date
VA0029416	**April 1, 2003**		**March 31, 2008**

Facility Name	Address	Telephone Number
Harbor View STP	**10609 Greene Drive Lorton, VA 22079**	**703-339-7169**
Owner Name	Address	Telephone Number
Colchester Public Service Corporation (CPSC)	**PO Box 279 Dunkirk, MD 20754**	**301-627-4986**
Responsible Official	Title	Telephone Number
Mr. Tony L. Sharp	**Regional Director**	**301-627-4986**
Responsible Operator	Operator Cert. Class/number	Telephone Number
Mr. Doug Hartline	**Class III/1911004647**	**703-339-7169**

TYPE OF FACILITY:

DOMESTIC				**INDUSTRIAL**			
Federal		Major		Major		Primary	
Non-federal	X	Minor	X	Minor		Secondary	

INFLUENT CHARACTERISTICS:		DESIGN:
	Flow	**0.080 MGD**
	Population Served	**Unknown**
	Connections Served	**165**
	BOD_5	**Unknown**
	TSS	**Unknown**

EFFLUENT LIMITS: **mg/L, unless specified**

Parameter	Min.	Avg.	Max.	Parameter	Min.	Avg.	Max.
pH, S.U.	**6.0**		**9.0**	**NH_3, Nov-Mar**		**2.0**	**2.6**
BOD_5		**5.0**	**7.5**	**NH_3, Apr-Oct**		**1.0**	**1.5**
TSS		**6.0**	**9.0**	**TRC, Contact**	**1.0**		
DO	**6.0**			**TRC, Tech Min**	**0.6**		
Total Phosphorus		**0.18**	**0.27**	**TRC, Res Max**		**0.01**	**0.01**
E. coli, #/100mL		**126**					

	Receiving Stream	**Massey Creek**
	Basin	**Potomac River**
	Discharge Point (LAT)	**38° 40' 08" N**
	Discharge Point (LONG)	**77° 13' 16" W**

VPDES NO. **VA0029416**

REV 5/00

DEQ
WATER FACILITY
INSPECTION REPORT
PART 1

Inspection date: **March 18, 2008**

Date form completed: **March 21, 2008**

Inspection by: **Terry Nelson**

Inspection agency: **DEQ NRO**

Time spent: **10 hours**

Announced: **No**

Reviewed by:

Scheduled: **Yes**

Present at inspection: **Doug Hartline, Tony Sharp**

TYPE OF FACILITY:

	Domestic	**Industrial**	
[ ] Federal	[ ] Major	[ ] Major	[ ] Primary
[**X**] Nonfederal	[**X**] Minor	[ ] Minor	[ ] Secondary

Type of inspection:

[**X**] Routine
[ ] Compliance/Assistance/Complaint
[ ] Reinspection

Date of last inspection: **January 25, 2005**
Agency: **DEQ NRO**

Population served: approx. **Unknown**

Connections served: approx. **165**

Last month average: (Influent) Month/year: **Not tested**

Last month average: (Effluent) Month/year: **February 2008**

Flow:	**0.017**	**MGD**	pH:	**7.6**	**S.U.**	TSS:	**1.6**	**mg/L**
$CBOD_5$	**2.4**	**mg/L**	TN	**22.9**	**mg/L**	TP	**0.10**	**mg/L**
DO	**9.4**	**mg/L**	NO_3	**22.4**	**mg/L**	E. Coli	**2**	**#/100 mL**

Quarter average: (Effluent) **November 2007 – January 2008**

Flow:	**0.020**	**MGD**	pH:	**7.8**	**S.U.**	TSS:	**2.6**	**mg/L**
$CBOD_5$	**2.3**	**mg/L**	TN	**25.5**	**mg/L**	TP	**0.07**	**mg/L**
DO	**7.8**	**mg/L**	NO_3	**24.9**	**mg/L**	E. Coli	**3.3**	**#/100 mL**

DATA VERIFIED IN PREFACE [**X**] Updated [ ] No changes

Has there been any new construction? [**X**] Yes [ ] No

If yes, were plans and specifications approved? [**X**] Yes [ ] No [ ] NA

DEQ approval date: **New filters did not require DEQ plan approval**

(A) PLANT OPERATION AND MAINTENANCE

1. Class and number of licensed operators: **1 Class I and 1 Class III**

2. Hours per day plant is manned: **8 hours per day, 7 days per week**

3. Describe adequacy of staffing. [**X**] Good [ ] Average [ ] Poor

4. Does the plant have an established program for training personnel? [**X**] Yes [ ] No

5. Describe the adequacy of the training program. [ ] Good [**X**] Average [ ] Poor

6. Are preventive maintenance tasks scheduled? [ ] Yes [**X**] No

7. Describe the adequacy of maintenance. [ ] Good [**X**] Average [ ] Poor*

8. Does the plant experience any organic/hydraulic overloading?
   If yes, identify cause and impact on plant: [ ] Yes [**X**] No

9. Any bypassing since last inspection? [ ] Yes [**X**] No

10. Is the standby electric generator operational? [**X**] Yes [ ] No* [ ] NA

11. Is the STP alarm system operational? [**X**] Yes [ ] No* [ ] NA

12. How often is the standby generator exercised? **Weekly**
    Power Transfer Switch? **Weekly**
    Alarm System? **Weekly**

13. When was the cross connection control device last tested on the potable water service? **04/05/07**

14. Is sludge being disposed in accordance with the approved sludge disposal plan?
    [**X**] Yes [ ] No [ ] NA

15. Is septage received by the facility? [ ] Yes [**X**] No
    Is septage loading controlled? [ ] Yes [ ] No [**X**] NA
    Are records maintained? [ ] Yes [ ] No [**X**] NA

16. Overall appearance of facility: [ ] Good [**X**] Average [ ] Poor

Comments:

4. **On the job training is provided. CPSC enrolls new staff in courses like DEQ/VA Tech Short School and Sacramento Course.**
8. **Slip-lining 4000 feet of sewers in April 2007 significantly reduced I&I impacts.**
14. **Sludge is taken to Noman Cole WWTP as necessary.**

(B) PLANT RECORDS

1. Which of the following records does the plant maintain?

Operational Logs for each unit process	[**X**] Yes	[ ] No	[ ] NA
Instrument maintenance and calibration	[**X**] Yes	[ ] No	[ ] NA
Mechanical equipment maintenance	[**X**] Yes	[ ] No	[ ] NA
Industrial waste contribution (Municipal Facilities)	[ ] Yes	[ ] No	[**X**] NA

2. What does the operational log contain?

[**X**] Visual observations	[ ] Flow measurement
[ ] Laboratory results	[**X**] Process adjustments
[ ] Control calculations	[ ] Other (specify)

Comments:

3. What do the mechanical equipment records contain?

[ ] As built plans and specs	[ ] Spare parts inventory
[**X**] Manufacturers instructions	[**X**] Equipment/parts suppliers
[ ] Lubrication schedules	[ ] Other (specify)

Comments:

4. What do the industrial waste contribution records contain? (Municipal Only)

[ ] Waste characteristics	[ ] Locations and discharge types
[ ] Impact on plant	[ ] Other (specify)

Comments: **No industrial flows**

5. Which of the following records are kept at the plant and available to personnel?

[**X**] Equipment maintenance records	[**X**] Operational Log
[ ] Industrial contributor records	[ ] Instrumentation records
[**X**] Sampling and testing records	

6. Records not normally available to plant personnel and their location: **None**

7. Were the records reviewed during the inspection? [**X**] Yes [ ] No

8. Are the records adequate and the O & M Manual current? [**X**] Yes [ ] No

9. Are the records maintained for the required 3-year time period? [**X**] Yes [ ] No

Comments:

(C) SAMPLING

1. Do sampling locations appear to be capable of providing representative samples? [**X**] Yes [ ] No*
2. Do sample types correspond to those required by the VPDES permit? [**X**] Yes [ ] No*
3. Do sampling frequencies correspond to those required by the VPDES permit? [**X**] Yes [ ] No*
4. Are composite samples collected in proportion to flow? [**X**] Yes [ ] No* [ ] NA
5. Are composite samples refrigerated during collection? [**X**] Yes [ ] No* [ ] NA
6. Does plant maintain required records of sampling? [**X**] Yes [ ] No*
7. Does plant run operational control tests? [**X**] Yes [ ] No

Comments:

(D) TESTING

1. Who performs the testing? [**X**] Plant [ ] Central Lab [**X**] Commercial Lab
   Name: **Plant** **pH, DO, TRC**
   Chesapeake Labs, Stevensville, MD **BOD, TSS, Nitrogen, Phosphorus, Bacteria**

If plant performs any testing, complete 2-4.

2. What method is used for chlorine analysis? **DPD Colorimetiric – Hach DR 2500**
3. Does plant appear to have sufficient equipment to perform required tests? [**X**] Yes [ ] No*
4. Does testing equipment appear to be clean and/or operable? [**X**] Yes [ ] No*

Comments:

(E) FOR INDUSTRIAL FACILITIES WITH TECHNOLOGY BASED LIMITS ONLY

1. Is the production process as described in the permit application? (If no, describe changes in comments)
   [ ] Yes [ ] No [ ] NA
2. Do products and production rates correspond as provided in the permit application? (If no, list differences)
   [ ] Yes [ ] No [ ] NA
3. Has the State been notified of the changes and their impact on plant effluent? Date:
   [ ] Yes [ ] No* [ ] NA

Comments:

UNIT PROCESS: Screening/Comminution

1. Number of Units: Manual: **1** Mechanical:

   Number in operation: Manual: **1** Mechanical:

2. Bypass channel provided: [ ] Yes [**X**] No*
   Bypass channel in use: [ ] Yes [ ] No

3. Area adequately ventilated: [**X**] Yes [ ] No*

4. Alarm system for equipment failure or overloads: [ ] Yes [**X**] No*

5. Proper flow distribution between units: [ ] Yes [ ] No [**X**] NA

6. How often are units checked and cleaned? **As needed, minimum twice per day**

7. Cycle of operation: **Continuous**

8. Volume of screenings removed: **2.5 gallons per day**

9. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

UNIT PROCESS: Grit Removal

1. Number of units: **1** In operation: **1**

2. Unit adequately ventilated: [**X**] Yes [ ] No*

3. Operation of grit collection equipment: [**X**] Manual [ ] Time clock [ ] Continuous duty

4. Proper flow distribution between units: [ ] Yes [ ] No* [**X**] NA

5 Daily volume of grit removed: **Vacuum truck comes every other week, no measure of quantity**

6. All equipment operable: [ ] Yes [ ] No* [**X**] NA

7. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

6. Grit chamber has no mechanical parts.

UNIT PROCESS: Activated Sludge Aeration

1. Number of units: **2** In operation: **2**

2. Mode of operation: **Extended aeration**

3. Proper flow distribution between units: [**X**] Yes [ ] No* [ ] NA

4. Foam control operational: [**X**] Yes [ ] No* [ ] NA

5. Scum control operational: [**X**] Yes [ ] No* [ ] NA

6. Evidence of following problems:

a. dead spots	[ ] Yes*	[**X**] No
b. excessive foam	[ ] Yes*	[**X**] No
c. poor aeration	[ ] Yes*	[**X**] No
d. excessive aeration	[ ] Yes*	[**X**] No
e. excessive scum	[ ] Yes*	[**X**] No
f. aeration equipment malfunction	[ ] Yes*	[**X**] No
g. other (identify in comments)	[ ] Yes*	[ ] No

7. Mixed liquor characteristics (as available):

pH:	**7**	**S.U.**
DO:	**5-6**	**mg/L**
Color:	**Orange brown**	
Odor:	**None**	
Settleability:	**250**	**ml/L**
Others (identify):		

8. Return/waste sludge: **Not measured**
   a. Return Rate:
   b. Waste Rate:
   c. Frequency of Wasting:

9. Aeration system control: [ ] Time Clock [ ] Manual [**X**] Continuous [ ] Other (explain)

10. Effluent control devices working properly (oxidation ditches): [ ] Yes [ ] No* [**X**] NA

11. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

UNIT PROCESS: Sedimentation

[ ] Primary [**X**] Secondary [ ] Tertiary

1.	Number of units: **2**	In operation: **2**		
2.	Proper flow distribution between units:	[**X**] Yes	[ ] No*	[ ] NA
3.	Signs of short circuiting and/or overloads:	[ ] Yes	[**X**] No	
4.	Effluent weirs level:	[**X**] Yes	[ ] No*	
	Clean:	[**X**] Yes	[ ] No*	
5.	Scum collection system working properly:	[**X**] Yes	[ ] No*	[ ] NA
6.	Sludge collection system working properly:	[**X**] Yes	[ ] No*	
7.	Influent, effluent baffle systems working properly:	[**X**] Yes	[ ] No*	
8.	Chemical addition:	[**X**] Yes	[ ] No	
	Chemicals: **Polymer is added to both units at the rate of 25 gallons per day.**			
9.	Effluent characteristics: **Clear**			
10.	General condition:	[**X**] Good	[ ] Fair	[ ] Poor

Comments:

- **Scum collection system cleaned every other week by vacuum truck.**
- **Sludge is removed by airlift lines using air provided by aeration basin blowers.**

UNIT PROCESS: Flow Equalization

1. Type: [**X**] In-line [ ] Side-line [ ] Spill pond — Number of cells: **1**

2. What unit process does it precede? **Pressure filters**

3. Is volume adequate? [**X**] Yes [ ] No

4. Mixing: [**X**] None [ ] Diffused air [ ] Fixed mechanical [ ] Floating mechanical

5. Condition of mixing equipment: [ ] Good [ ] Average [ ] Poor [**X**] NA

6. How drawn off?
   A. Pumped from: [ ] Surface [**X**] Sub-surface [ ] Adjustable
   B. Weir [ ] Surface [ ] Sub-surface

7. Is containment structure in good condition? [**X**] Yes [ ] No

8. Are the facilities to flush solids and grease from basin walls adequate? [**X**] Yes [ ] No [ ] NA

9. Are there facilities for withdrawing floating material and foam? [**X**] Yes [ ] No

10. How are solids removed? [ ] Drain down [ ] Drag line [ ] NA [**X**] Other: **Vacuum truck**

    Is it adequate? [**X**] Yes [ ] No

11. Is the emergency overflow in good condition? [**X**] Yes [ ] No [ ] NA

12. Are the depth gauges in good condition? [ ] Yes [ ] No [**X**] NA

Comments:

UNIT PROCESS: Filtration

1. Type of filters: [ ] Gravity [**X**] Pressure [ ] Intermittent

2. Number of units: **2** In operation: **2**

3. Operation of system: [**X**] Automatic [ ] Semi-automatic [ ] Manual [ ] Other(specify)

4. Proper flow distribution between units: [**X**] Yes [ ] No* [ ] NA

5. Evidence of following problems: **Enclosed system**

a. uneven flow distribution	[ ] Yes*	[ ] No
b filter clogging (ponding)	[ ] Yes*	[ ] No
c. nozzles clogging	[ ] Yes*	[ ] No
d. icing	[ ] Yes*	[ ] No
e. filter flies	[ ] Yes*	[ ] No
f. vegetation on filter	[ ] Yes*	[ ] No

6. Filter aid system provided: [**X**] Yes [ ] No
   Properly operating: [**X**] Yes [ ] No [ ] NA
   Chemical used: **Pollu-Tech A-23G polymer**

7. Automatic valves properly operating: [**X**] Yes [ ] No* [ ] NA

8. Valves sequencing correctly: [**X**] Yes [ ] No* [ ] NA

9. Backwash system operating properly: [**X**] Yes [ ] No* [ ] NA

10. Filter building adequately ventilated: [**X**] Yes [ ] No* [ ] NA

11. Effluent characteristics: **Clear**

12. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

- **Filters were replaced in 2007.**
- **During backwashing, the spent water flows to the 9,000 gallon backwash tank.**

UNIT PROCESS: Chlorination

1	No. of chlorinators:	**1**	In operation:	**1**
2.	No. of evaporators:		In operation:	
3.	No. of chlorine contact tanks:	**1**	In operation:	**1**
4.	Proper flow distribution between units:		[ ] Yes [ ] No*	[**X**] NA

5. How is chlorine introduced into the wastewater?
   [ ] Perforated diffusers
   [**X**] Injector with single entry point
   [ ] Other

6. Chlorine residual in basin effluent: **7.1 mg/L 0850 DEQ**
   8.7 mg/L Mr. Hartline

7. Applied chlorine dosage: **35 lbs/day**

8. Contact basins adequately baffled: [**X**] Yes [ ] No*

9. Adequate ventilation:
   a. cylinder storage area [**X**] Yes [ ] No*
   b. equipment room [**X**] Yes [ ] No*

10. Proper safety precautions used: [**X**] Yes [ ] No*

11. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

UNIT PROCESS: Dechlorination

1. Chemical used: [ ] Sulfur Dioxide [**X**] Bisulfite [ ] Other

2. No. of sulfonators: In operation:

3. No. of evaporators: In operation:

4. No. of chemical feeders: **1** In operation: **1**

5. No. of contact tanks: **1** In operation: **1**

6. Proper flow distribution between units: [ ] Yes [ ] No* [**X**] NA

7. How is chemical introduced into the wastewater?
   [ ] Perforated diffusers
   [**X**] Injector with single entry point
   [ ] Other

8. Control system operational: [**X**] Yes [ ] No*
   a. residual analyzers: [**X**] Yes [ ] No*
   b. system adjusted: [ ] Automatic [**X**] Manual [ ] Other:

9. Applied dechlorination dose: **40 lbs/day**

10. Chlorine residual in basin effluent: **0.01 mg/L (< QL) DEQ 0837**
    0.02 mg/L Harborview staff

11. Contact basins adequately baffled: [**X**] Yes [ ] No* [ ] NA

12. Adequate ventilation:
    a. cylinder storage area: [ ] Yes [ ] No*
    b. equipment room: [**X**] Yes [ ] No*

13. Proper safety precautions used: [**X**] Yes [ ] No*

14. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

5. **Dechlorination tank is divided into 2 chambers, with ISCO composites and grab samples collected from the second chamber.**

UNIT PROCESS: Flow Measurement

[ ] Influent [ ] Intermediate [**X**] Effluent

1. Type measuring device: **Sigma 970 Ultrasonic with V-notch weir**
2. Present reading: **22 gallons/minute**
3. Bypass channel: [ ] Yes [**X**] No
   Metered: [ ] Yes [ ] No
4. Return flows discharged upstream from meter: [ ] Yes [**X**] No
   Identify:
5. Device operating properly: [**X**] Yes [ ] No*
6. Date of last calibration: **12/31/07**
7. Evidence of following problems:
   a. obstructions [ ] Yes* [**X**] No
   b. grease [ ] Yes* [**X**] No
8. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

UNIT PROCESS: Effluent/Plant Outfall

1. Type Outfall [ ] Shore based [**X**] Submerged
2. Type if shore based: [ ] Wingwall [ ] Headwall [ ] Rip Rap
3. Flapper valve: [**X**] Yes [ ] No [ ] NA
4. Erosion of bank: [ ] Yes [ ] No [ ] NA
5. Effluent plume visible? [ ] Yes* [ ] No
6. Condition of outfall and supporting structures: [ ] Good [ ] Fair [ ] Poor*
7. Final effluent, evidence of following problems:
   a. oil sheen [ ] Yes* [ ] No
   b. grease [ ] Yes* [ ] No
   c. sludge bar [ ] Yes* [ ] No
   d. turbid effluent [ ] Yes* [ ] No
   e. visible foam [ ] Yes* [ ] No
   f. unusual color [ ] Yes* [ ] No

Comments:

- **Outfall located on Harbor View Marina property, inside secured fence and locked gate.**
- **During high tide, the outfall can not be observed from the marina property.**

UNIT PROCESS: Aerobic Digestion

1. Number of units:	**1**	In operation:	**1**
2. Type of sludge treated	[ ] Primary	[**X**] WAS	[ ] Other
3. Frequency of sludge application to digestors:	**Daily**		
4. Supernatant return rate:	**Not measured**		
5. pH adjustment provided:	[ ] Yes	[**X**] No	
Utilized:	[ ] Yes	[ ] No	[**X**] NA
6. Tank contents well-mixed and relatively free of odors:		[**X**] Yes	[ ] No*
7. If diffused aeration is used, do diffusers require frequent cleaning?	[ ] Yes	[**X**] No	[ ] NA
8. Location of supernatant return:	[**X**] Head	[ ] Primary	[ ] Other
9. Process control testing:			
a. reduction of volatile solids	[ ] Yes	[**X**] No	
b. pH	[ ] Yes	[**X**] No	
c. alkalinity	[ ] Yes	[**X**] No	
d. dissolved oxygen	[ ] Yes	[**X**] No	
10. Foaming problem present:	[ ] Yes*	[**X**] No	
11. Signs of short-circuiting or overloads:	[ ] Yes*	[**X**] No	
12. General condition:	[**X**] Good	[ ] Fair	[ ] Poor

Comments:

UNIT PROCESS: Sewage Pumping

1. Name of station: **Southeast Lift Station**

2. Location (if not at STP): **Anita Drive**

3. Following equipment operable:

a.	all pumps	[**X**] Yes	[ ] No*	
b.	ventilation	[**X**] Yes	[ ] No*	
c.	control system	[**X**] Yes	[ ] No*	
d.	sump pump	[ ] Yes	[ ] No*	[**X**] NA
e.	seal water system	[ ] Yes	[ ] No*	[**X**] NA

4. Reliability considerations:

a.	Class	[**X**] I	[ ] II	[ ] III
b.	Alarm system operable:	[**X**] Yes	[ ] No*	
c.	Alarm conditions monitored:			
	1. high water level	[**X**] Yes	[ ] No*	
	2. high liquid level in dry well	[**X**] Yes	[ ] No	[ ] NA
	3. main electric power	[**X**] Yes	[ ] No	[ ] NA
	4. auxiliary electric power	[**X**] Yes	[ ] No	[ ] NA
	5. failure of pump motors to start	[**X**] Yes	[ ] No	[ ] NA
	6. test function	[**X**] Yes	[ ] No*	
	7. other	[ ] Yes	[ ] No	
d.	Backup for alarm system operational:	[ ] Yes	[ ] No	[**X**] NA
e.	Alarm signal reported to (identify):	**Autodials operator**		
f.	Continuous operability provisions:			
	[**X**] generator	[ ] two sources of power		
	[ ] portable pump	[ ] 1 day storage		[ ] other

5. Does station have bypass:

		[ ] Yes*	[**X**] No
a.	evidence of bypass use	[ ] Yes*	[ ] No
b.	can bypass be disinfected	[ ] Yes	[ ] No
c.	can bypass be measured	[ ] Yes	[ ] No

6. How often is station checked? **Twice per day**

7. General condition: [**X**] Good [ ] Fair [ ] Poor

Comments:

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
LABORATORY INSPECTION REPORT

10/01

FACILITY NO:	INSPECTION DATE:	PREVIOUS INSPECTION:	PREVIOUS EVALUATION:	TIME SPENT:
VA0029416	March 8, 2008	January 25, 2005	Deficiencies	3 hours

NAME/ADDRESS OF FACILITY:	FACILITY CLASS:	FACILITY TYPE:	UNANNOUNCED INSPECTION?
Harbor View STP 10609 Greene Drive Lorton, VA 22079	( ) MAJOR (X) MINOR ( ) SMALL ( ) VPA/NDC	(X) MUNICIPAL ( ) INDUSTRIAL ( ) FEDERAL ( ) COMMERCIAL LAB	(X) YES ( ) NO **FY-SCHEDULED INSPECTION?** (X) YES ( ) NO

INSPECTOR(S):	REVIEWERS:	PRESENT AT INSPECTION:
Terry Nelson		Doug Hartline

LABORATORY EVALUATION	DEFICIENCIES? Yes	No
LABORATORY RECORDS		X
GENERAL SAMPLING & ANALYSIS	X	
LABORATORY EQUIPMENT		X
QUALITY ASSURANCE /QUALITY CONTROL	X	
pH ANALYSIS PROCEDURES	X	
TOTAL RESIDUAL CHLORINE ANALYSIS PROCEDURES	X	
DISSOLVED OXYGEN ANALYSIS PROCEDURES		X

QUALITY ASSURANCE/QUALITY CONTROL

Y/N	QUALITY ASSURANCE METHOD	PARAMETERS	FREQUENCY
N	REPLICATE SAMPLES	pH, TRC	
	SPIKED SAMPLES		
Y	STANDARD SAMPLES	TRC	Quarterly
	SPLIT SAMPLES		
Y	SAMPLE BLANKS	TRC	Daily
	OTHER		
Y	EPA-DMR QA DATA? Study 27	RATING: (X) No Deficiency ( ) Deficiency ( ) NA	
	QC SAMPLES PROVIDED?	RATING: ( ) No Deficiency ( ) Deficiency ( ) NA	

FACILITY #: **VA0029416**

LABORATORY RECORDS SECTION

LABORATORY RECORDS INCLUDE THE FOLLOWING:

X	SAMPLING DATE	X	ANALYSIS DATE		CONT MONITORING CHART
X	SAMPLING TIME	X	ANALYSIS TIME	X	INSTRUMENT CALIBRATION
X	SAMPLE LOCATION	X	TEST METHOD	X	INSTRUMENT MAINTENANCE
				X	CERTIFICATE OF ANALYSIS

WRITTEN INSTRUCTIONS INCLUDE THE FOLLOWING:

X	SAMPLING SCHEDULES		CALCULATIONS	X	ANALYSIS PROCEDURES

	YES	NO	N/A
DO ALL ANALYSTS INITIAL THEIR WORK?	X		
DO BENCH SHEETS INCLUDE ALL INFORMATION NECESSARY TO DETERMINE RESULTS?	X		
IS THE DMR COMPLETE AND CORRECT? MONTH(S) REVIEWED: **February 2008**	X		
ARE ALL MONITORING VALUES REQUIRED BY THE PERMIT REPORTED?	X		

GENERAL SAMPLING AND ANALYSIS SECTION

	YES	NO	N/A
ARE SAMPLE LOCATION(S) ACCORDING TO PERMIT REQUIREMENTS?	X		
ARE SAMPLE COLLECTION PROCEDURES APPROPRIATE?	X		
IS SAMPLE EQUIPMENT CONDITION ADEQUATE?	X		
IS FLOW MEASUREMENT ACCORDING TO PERMIT REQUIREMENTS?	X		
ARE COMPOSITE SAMPLES REPRESENTATIVE OF FLOW?	X		
ARE SAMPLE HOLDING TIMES AND PRESERVATION ADEQUATE?		X	
IF ANALYSIS IS PERFORMED AT ANOTHER LOCATION, ARE SHIPPING PROCEDURES ADEQUATE? LIST PARAMETERS AND NAME & ADDRESS OF LAB: **BOD, TSS, Phosphorus, Nitrogen, E. Coli done by Chesapeake Labs, Stevensville, MD**	X		

LABORATORY EQUIPMENT SECTION

	YES	NO	N/A
IS LABORATORY EQUIPMENT IN PROPER OPERATING RANGE?	X		
ARE ANNUAL THERMOMETER CALIBRATION(S) ADEQUATE?	X		
IS THE LABORATORY GRADE WATER SUPPLY ADEQUATE?			X
ARE ANALYTICAL BALANCE(S) ADEQUATE?			X

ANALYST:	**Doug Hartline**	VPDES NO	**VA0029416**

Parameter: Hydrogen Ion (pH)
Method: Electrometric
01/08

Meter: HACH DR 2500

METHOD OF ANALYSIS

X	18th Edition of Standard Methods-4500-H-B
	21st or On-Line Edition of Standard Methods-4500-H-B (00)

	pH is a method defined analyte so modifications are not allowed. [40 CFR Part 136.6]	**Y**	**N**
1)	Is a certificate of operator competence or initial demonstration of capability available for each analyst/operator performing the analysis? **NOTE:** Analyze 4 samples of known pH. May use external source of buffer (different lot/manufacturer than buffers used to calibrate meter). Recovery for each of the 4 samples must be ± 0.1 SU of the known concentration of the sample. [SM 1020 B.1]		**X**
2)	Is the electrode in good condition (no chloride precipitate, etc.)? [2.b/c and 5.b]	**X**	
3)	Is electrode storage solution in accordance with manufacturer's instructions? [Mfr.]	**X**	
4)	Is meter calibrated on at least a daily basis using three buffers all of which are at the same temperature? [4.a] NOTE: Follow manufacturer's instructions.	**X**	
5)	After calibration, is a buffer analyzed as a check sample to verify that calibration is correct? Agreement should by within ± 0.1 SU. [4.a]		**X**
6)	Do the buffer solutions appear to be free of contamination or growths? [3.1]	**X**	
7)	Are buffer solutions within their listed shelf life or have they been prepared within the last 4 weeks? [3.a]	**X**	
8)	Is the cap or sleeve covering the access hole on the reference electrode removed when measuring pH? [Mfr.]	**NA**	
9)	For meters with ATC that also have temperature display, was the thermometer calibrated annually? [SM2550 B.1]	**X**	
10)	Is the temperature of buffer solutions and samples recorded when determining pH? [4.a]	**X**	
11)	Is sample analyzed within 15 minutes of collection? [40 CFR 136.6]	**X**	
12)	Was the electrode rinsed and then blotted dry between reading solutions (Disregard if a portion of the next sample analyzed is used as the rinse solution)? [4.a]	**X**	
13)	Is the sample stirred gently at a constant speed during measurement? [4.b]	**X**	
14)	Does the meter hold a steady reading after reaching equilibrium? [4.b]	**X**	
15)	Is a duplicate sample analyzed after every 20 samples if citing 18th or 19th Edition [1020 B.6] or after every 10 samples for 20th or 21st Edition [Part 1020] Note: Not required for *in situ* samples.		**X**
16)	Is pH of duplicate samples within 0.1 SU of the original sample? [Part 1020]		**X**
17)	Is there a written procedure for which result will be reported on DMR (Sample or Duplicate) and is this procedure followed? [DEQ]		**X**

COMMENTS:	
PROBLEMS:	**Mr. Hartline had not received information on the increased requirements that include IDC and duplicates.**

ANALYST:	**Doug Hartline**	VPDES NO.	**VA0029416**

Parameter: Dissolved Oxygen
Method: Electrode
Facility Elevation - 10 ft
01/08

Meter:YSI Model 55

METHOD OF ANALYSIS:

X	18th Edition of Standard Methods-4500-O G
	21st or Online Editions of Standard Methods-4500-O G (01)

	DO is a method defined analyte so modifications are not allowed. [40 CFR Part 136.6]	**Y**	**N**
1)	If samples are collected, is collection carried out with a minimum of turbulence and air bubble formation and is the sample bottle allowed to overflow several times its volume? [B.3]	**NA**	
2)	Are meter and electrode operable and providing consistent readings? [3]	**X**	
3)	Is membrane in good condition without trapped air bubbles? [3.b]	**X**	
4)	Is correct filling solution used in electrode? [Mfr.]	**X**	
5)	Are water droplets shaken off the membrane prior to calibration? [Mfr.]	**X**	
6)	Is meter calibrated before use or at least daily? [Mfr.]	**X**	
7)	Is calibration procedure performed according to manufacturer's instructions? [Mfr.]	**X**	
8)	Is sample stirred during analysis? [Mfr.]	**NA**	
9)	Is the sample analysis procedure performed according to manufacturer's instructions? [Mfr.]	**X**	
10)	Is meter stabilized before reading D.O.? [Mfr.]	**X**	
11)	Is electrode stored according to manufacturer's instructions? [Mfr.]	**X**	
12)	Is a duplicate sample analyzed after every 20 samples if citing 18th or 19th Edition [1020 B.6] or after every 10 samples for 20th or 21st Edition [Part 1020] Note: Not required for *in situ* samples.	**X**	
13)	If a duplicate sample is analyzed, is the reported value for that sampling event, the average concentration of the sample and the duplicate? [DEQ]	**X**	
14)	If a duplicate sample is analyzed, is the relative percent difference (RPD) < 20? [18th ed. Table 1020 I; 21st ed. DEQ]	**X**	

COMMENTS:	
PROBLEMS:	**None noted**

ANALYST:	**Doug Hartline**	VPDES NO	**VA0029416**

Parameter: Total Residual Chlorine
Method: DPD Colorimetric (HACH Pocket Colorimeter™)
01/08

Instrument: Hach DR 2500

METHOD OF ANALYSIS:

X	HACH Manufacturer's Instructions (Method 8167) plus an edition of Standard Methods
X	18th Edition of Standard Methods 4500-Cl G
	21st Edition of Standard Methods 4500-Cl G (00)

		Y	N
1)	Is a certificate of operator competence or initial demonstration of capability available for each analyst/operator performing this analysis? NOTE: Analyze 4 samples of known TRC. Must use a lot number or source that is different from that used to prepare calibration standards. May not use Specv ™. [SM 1020 B.1]		**X**
2)	Are the DPD PermaChem® Powder Pillows stored in a cool, dry place? [Mfr.]	**X**	
3)	Are the pillows within the manufacturer's expiration date? [Mfr]	**X**	
4)	Has buffering capability of DPD pillows been checked annually? (Pillows should adjust sample pH to between 6 and 7) [Mfr]	**X**	
5)	When pH adjustment is required, is H_2SO_4 or NaOH used? [11.3.1]	**X**	
6)	Are cells clean and in good condition? [Mfr]	**X**	
7)	Is the low range (0.01-mg/L resolution) used for samples containing residuals from 0-2.00 mg/L? [Mfr.]	**X**	
8)	Is calibration curve developed (may use manufacturer's calibration) with daily verification using a high and a low standard? NOTE: May use manufacturer's installed calibration and commercially available chlorine standards for daily calibration verifications. [18th ed 1020 B.5; 21st ed 4020 B.2.b]		**X**
9)	Is the 10-mL cell (2.5-cm diameter) used for samples from 0-2.00 mg/L? [Mfr.]	**X**	
10)	Is the meter zeroed correctly by using sample as blank for the cell used? [Mfr.]	**X**	
11)	Is the instrument cap placed correctly on the meter body when the meter is zeroed and when the sample is analyzed? [Mfr.]	**X**	
12)	Is the DPD Total Chlorine PermaChem® Powder Pillow mixed into the sample? [HACH 11.1]	**X**	
13)	Is the analysis made at least three minutes but not more than six minutes after PermaChem® Powder Pillow addition? [11.2]	**X**	
14)	If read-out is flashing [2.20], is sample diluted correctly, then reanalyzed? [1.2 & 2.0]	**See note**	
15)	Are samples analyzed within 15 minutes of collection? [40 CFR Part 136]	**X**	
16)	Is a duplicate sample analyzed after every 20 samples if citing 18th Edition [SM 1020 B.6] or daily for 21st Edition [SM 4020 B.3.c]?		**X**
17)	If duplicate sample is analyzed, is the relative percent difference (RPD) ≤ 20? [18th ed. Table 1020 I; 21st ed. DEQ]		**X**

COMMENTS:	**Plant has correct standards but not aware of what mg/L range they cover. The difference in chlorine contact tank results by DEQ versus the plant suggests meter calibration problems. DEQ checked High Range on 03/11/08 for 2 mg/L to 6.6 mg/L range.**
PROBLEMS:	**Running samples on High Range not a true test for final effluent result <0.1 mg/L.**

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
SAMPLE ANALYSIS HOLDING TIME/CONTAINER/PRESERVATION CHECK SHEET
Revised 03/08 [40 CFR, Part 136.3, Table II]

FACILITY NAME:	**Harbor View STP**	VPDES NO	**VA0029416**	DATE:	**March 18, 2008**

HOLDING TIMES						SAMPLE CONTAINER				PRESERVATION				
PARAMETER	APPROVED	MET?		LOGGED?		ADEQ. VOLUME		APPROP. TYPE		APPROVED	MET?		CHECKED?	
		Y	N	Y	N	Y	N	Y	N		Y	N	Y	N
BOD5 & CBOD5	48 HOURS	X		X		X		X		ANALYZE 2 HRS or 6° C	X		X	
TSS	7 DAYS	X		X		X		X		6° C	X		X	
FECAL COLIFORM/E. Coli/ Enterococci	6 HRS & 2 HRS TO PROCESS	X		X		X		X		6° C (1 HOUR) +0.008% $Na_2S_2O_3$	X		X	
pH	15 MIN.	X		X		X		X		N/A	X		X	
CHLORINE	15 MIN.	X		X		X		X		N/A	X		X	
DISSOLVED 0_2	15 MIN./IN SITU	X		X		X		X		N/A	X		X	
TEMPERATURE	IMMERSION STAB.	X		X		X		X		N/A	X		X	
AMMONIA	28 DAYS	X		X		X		X		6° C+H_2S0_4 pH<2 DECHLOR	X		X	
TKN	28 DAYS	X		X		X		X		6° C+H_2S0_4 pH<2 DECHLOR	X		X	
NITRATE+NITRITE	28 DAYS	X		X		X		X		6° C+H_2S0_4 pH<2	X		X	
NITRITE	48 HOURS		X	X		X		X		6° C	X		X	
PHOSPHATE, ORTHO	48 HOURS	X		X		X		X		FILTER, 6° C		X	X	
TOTAL PHOS.	28 DAYS	X		X		X		X		6° C+H_2S0_4 pH<2	X		X	

COMMENTS:	
PROBLEMS:	**Of 12 CBOD samples, 2 show set-up times exactly 48 hours after collection and 1 was set up at 47 hours 45 minutes.** **Of 2 nitrite samples, 1 was analyzed at 48 hours 15 minutes.** **No documentation is available to show ortho-phosphate is filtered in the field as required by the method.**

To:	Joan C. Crowther
From:	Jennifer Carlson
Date:	April 16, 2013
Subject:	Planning Statement for Harbor View Wastewater Treatment Plant
Permit Number:	VA0029416

Information for Outfall 001:
Discharge Type: Municipal
Discharge Flow: 0.08 MGD
Receiving Stream: Massey Creek
Latitude / Longitude: 38° 40' 08" 77° 13' 16"
Rivermile: 0.76
Streamcode: 1aMAE
Waterbody: VAN-A25E
Water Quality Standards: Class II, Section 6, Special Standards b, y
Drainage Area: Tidal

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

   This facility discharges into Massey Creek, a tidal tributary to Occoquan Bay. There is no DEQ water quality monitoring station in Massey Creek. There are two DEQ special study stations in Occoquan Bay located close to Massey Creek. Station 1aOCC003.82 is located near the mouth of Massey Creek, but was only visited twice in 2005 for a PCB study. Station 1aOCC004.00 is located at the Belmont Marina dock, and was visited twice in 2007 for a continuous monitoring study. The nearest regular DEQ ambient monitoring station is 1aOCC004.52, located in the Occoquan Bay, approximately 1.5 miles from Outfall 001. This station is located approximately 0.8 miles upstream of the area Massey Creek enters Occoquan Bay and was last monitored in August 2012. The following is the water quality summary for this tidal portion of the Occoquan Bay, as taken from the Draft 2012 Integrated Assessment*:

   Class II, Section 6, special stds. b, y.

   DEQ ambient water quality monitoring stations 1aOCC003.82, near the mouth of Massey Creek, 1aOCC004.00, at the Belmont Marina dock, and 1aOCC004.52, at green daymarker #15.

   The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. SPMD data revealed an exceedance of the human health criteria of 0.64 parts per billion (ppb) polychlorinated biphenyls (PCBs) at station 1aOCC003.82, which is noted by an observed effect. A PCB TMDL for the tidal Potomac River watershed has been completed and approved.

   The aquatic life use is fully supporting. A TMDL has been completed for the Chesapeake Bay watershed. The submerged aquatic vegetation data is assessed as fully supporting the aquatic

life use. For the open water aquatic life subuse; the thirty day mean is acceptable, however, the seven day mean and instantaneous levels have not been assessed.

The wildlife use is considered fully supporting. The recreation use was not assessed.

** Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.*

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A.

   Yes.

Table A. 303(d) Impairment and TMDL information for the receiving stream segment

Waterbody Name	Impaired Use	Cause	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the DRAFT 2012 Integrated Report*						
Occoquan Bay/Massey Creek	Fish Consumption	PCBs	Tidal Potomac PCB 10/31/2007	None	N/A	---

** Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.*

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

   Yes.

Table B. Information on Downstream 303(d) Impairments and TMDLs

Waterbody Name	Impaired Use*	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the DRAFT 2012 Integrated Report*							
Occoquan Bay	Aquatic Life	Estuarine Bioassessments	2.0 miles	No	N/A	N/A	2018

** Virginia's Draft 2012 Integrated Report (IR) has been through the public comment period and reviewed by EPA. The 2012 IR is currently awaiting final approval.*

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

   There is a PCB impairment in the tidal Occoquan Bay. A PCB TMDL has been completed for the Potomac River watershed and was approved by EPA on 10/31/2007. DEQ Staff has concluded that low-level PCB monitoring is not warranted for this facility, as it is a small wastewater treatment facility and is unlikely to discharge any PCBs.

   There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

   There are no public water supply intakes within 5 miles of this facility.

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Colchester (April - October) Permit No.: VA0029416

Receiving Stream: Massey Creek Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	290 mg/L	1Q10 (Annual) =	0 MGD	Annual - 1Q10 Mix =	100 %	Mean Hardness (as CaCO3) =	290 mg/L
90% Temperature (Annual) =	25.8 deg C	7Q10 (Annual) =	0 MGD	- 7Q10 Mix =	100 %	90% Temp (Annual) =	25.8 deg C
90% Temperature (Wet season) =	deg C	30Q10 (Annual) =	0 MGD	- 30Q10 Mix =	100 %	90% Temp (Wet season) =	deg C
90% Maximum pH =	7.5 SU	1Q10 (Wet season) =	0 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	7.5 SU
10% Maximum pH =	SU	30Q10 (Wet season)	0 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	SU
Tier Designation (1 or 2) =	1	30Q5 =	0 MGD			Discharge Flow =	0.08 MGD
Public Water Supply (PWS) Y/N? =	n	Harmonic Mean =	0 MGD				
Trout Present Y/N? =	n						
Early Life Stages Present Y/N? =	y						

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile [C]	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin [C]	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	1.99E+01	2.11E+00	na	--	1.99E+01	2.11E+00	na	--	--	--	--	--	--	--	--	--	1.99E+01	2.11E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	1.99E+01	4.36E+00	na	--	1.99E+01	4.36E+00	na	--	--	--	--	--	--	--	--	--	1.99E+01	4.36E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine [C]	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis2-Chloroethyl Ether [C]	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform [C]	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	1.3E+01	2.6E+00	na	--	1.3E+01	2.6E+00	na	--	--	--	--	--	--	--	--	--	1.3E+01	2.6E+00	na	--
Carbon Tetrachloride [C]	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	1.4E+03	1.8E+02	na	--	1.4E+03	1.8E+02	na	--	--	--	--	--	--	--	--	--	1.4E+03	1.8E+02	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene[C]	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	3.7E+01	2.2E+01	na	--	3.7E+01	2.2E+01	na	--	--	--	--	--	--	--	--	--	3.7E+01	2.2E+01	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD[C]	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE[C]	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT[C]	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene[C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane[C]	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane[C]	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene[C]	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin[C]	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene[C]	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegredation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide [C]	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene [C]	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene [C]	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane Alpha-BHC [C]	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane Beta-BHC [C]	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC [C] (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane [C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone [C]	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	4.6E+02	5.2E+01	na	--	4.6E+02	5.2E+01	na	--	--	--	--	--	--	--	--	--	4.6E+02	5.2E+01	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride [C]	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	4.5E+02	5.0E+01	na	4.6E+03	4.5E+02	5.0E+01	na	4.6E+03	--	--	--	--	--	--	--	--	4.5E+02	5.0E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine [C]	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine [C]	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine [C]	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total [C]	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol [C]	0	7.7E-03	5.9E-03	na	3.0E+01	7.7E-03	5.9E-03	na	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	**na**	**4.2E+03**
Silver	0	2.2E+01	--	na	--	2.2E+01	--	na	--	--	--	--	--	--	--	--	--	**2.2E+01**	**--**	**na**	**--**
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.0E+01**
Tetrachloroethylene[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.3E+01**
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.7E-01**
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.0E+03**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	**na**	**2.8E-03**
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	**4.6E-01**	**7.2E-02**	**na**	**--**
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**7.0E+01**
1,1,2-Trichloroethane[C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.6E+02**
Trichloroethylene [C]	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.0E+02**
2,4,6-Trichlorophenol [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Vinyl Chloride[C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**
Zinc	0	2.9E+02	2.9E+02	na	2.6E+04	2.9E+02	2.9E+02	na	2.6E+04	--	--	--	--	--	--	--	--	**2.9E+02**	**2.9E+02**	**na**	**2.6E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	1.6E+00
Chromium III	1.1E+02
Chromium VI	6.4E+00
Copper	1.3E+01
Iron	na
Lead	3.1E+01
Manganese	na
Mercury	4.6E-01
Nickel	3.0E+01
Selenium	3.0E+00
Silver	8.6E+00
Zinc	1.2E+02

Note: do not use QL's lower than the minimum QL's provided in agency guidance

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Colchester (Nov - Jan - No Early Life Stage Present) Permit No.: VA0029416

Receiving Stream: Massey Creek

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	290 mg/L	1Q10 (Annual) =	0 MGD	Annual - 1Q10 Mix =	100 %	Mean Hardness (as CaCO3) =	290 mg/L
90% Temperature (Annual) =	25.8 deg C	7Q10 (Annual) =	0 MGD	- 7Q10 Mix =	100 %	90% Temp (Annual) =	25.8 deg C
90% Temperature (Wet season) =	15.6 deg C	30Q10 (Annual) =	0 MGD	- 30Q10 Mix =	100 %	90% Temp (Wet season) =	15.6 deg C
90% Maximum pH =	7.6 SU	1Q10 (Wet season) =	0 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	7.6 SU
10% Maximum pH =	SU	30Q10 (Wet season)	0 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	SU
Tier Designation (1 or 2) =	1	30Q5 =	0 MGD			Discharge Flow =	0.08 MGD
Public Water Supply (PWS) Y/N? =	n	Harmonic Mean =	0 MGD				
Trout Present Y/N? =	n						
Early Life Stages Present Y/N? =	n						

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile [C]	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin [C]	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	1.70E+01	1.92E+00	na	--	1.70E+01	1.92E+00	na	--	--	--	--	--	--	--	--	--	1.70E+01	1.92E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	1.70E+01	3.71E+00	na	--	1.70E+01	3.71E+00	na	--	--	--	--	--	--	--	--	--	1.70E+01	3.71E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine [C]	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis2-Chloroethyl Ether [C]	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform [C]	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	1.3E+01	2.6E+00	na	--	1.3E+01	2.6E+00	na	--	--	--	--	--	--	--	--	--	1.3E+01	2.6E+00	na	--
Carbon Tetrachloride [C]	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	1.4E+03	1.8E+02	na	--	1.4E+03	1.8E+02	na	--	--	--	--	--	--	--	--	--	1.4E+03	1.8E+02	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene[C]	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	3.7E+01	2.2E+01	na	--	3.7E+01	2.2E+01	na	--	--	--	--	--	--	--	--	--	3.7E+01	2.2E+01	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD[C]	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE[C]	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT[C]	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene[C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane[C]	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane[C]	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene[C]	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin[C]	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene[C]	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide[C]	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene[C]	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene[C]	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane Alpha-BHC[C]	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane Beta-BHC[C]	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC[C] (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone[C]	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	4.6E+02	5.2E+01	na	--	4.6E+02	5.2E+01	na	--	--	--	--	--	--	--	--	--	4.6E+02	5.2E+01	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride [C]	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	4.5E+02	5.0E+01	na	4.6E+03	4.5E+02	5.0E+01	na	4.6E+03	--	--	--	--	--	--	--	--	4.5E+02	5.0E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine[C]	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine[C]	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine[C]	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total[C]	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol [C]	0	7.7E-03	5.9E-03	na	3.0E+01	7.7E-03	5.9E-03	na	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	na	**4.2E+03**
Silver	0	2.2E+01	--	na	--	2.2E+01	--	na	--	--	--	--	--	--	--	--	--	**2.2E+01**	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	--	--	na	**4.0E+01**
Tetrachloroethylene[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	**3.3E+01**
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	--	--	na	**4.7E-01**
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	--	--	na	**6.0E+03**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene [C]	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	na	**2.8E-03**
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	**4.6E-01**	**7.2E-02**	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	--	--	na	**7.0E+01**
1,1,2-Trichloroethane[C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	**1.6E+02**
Trichloroethylene [C]	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	**3.0E+02**
2,4,6-Trichlorophenol [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	**2.4E+01**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride[C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	**2.4E+01**
Zinc	0	2.9E+02	2.9E+02	na	2.6E+04	2.9E+02	2.9E+02	na	2.6E+04	--	--	--	--	--	--	--	--	**2.9E+02**	**2.9E+02**	na	**2.6E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	1.6E+00
Chromium III	1.1E+02
Chromium VI	6.4E+00
Copper	1.3E+01
Iron	na
Lead	3.1E+01
Manganese	na
Mercury	4.6E-01
Nickel	3.0E+01
Selenium	3.0E+00
Silver	8.6E+00
Zinc	1.2E+02

Note: do not use QL's lower than the minimum QL's provided in agency guidance

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Colchester (February - March - Early Life Stage Present) Permit No.: VA0029416

Receiving Stream: Massey Creek

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	290 mg/L	1Q10 (Annual) =	0 MGD	Annual - 1Q10 Mix =	100 %	Mean Hardness (as CaCO3) =	290 mg/L
90% Temperature (Annual) =	25.8 deg C	7Q10 (Annual) =	0 MGD	- 7Q10 Mix =	100 %	90% Temp (Annual) =	25.8 deg C
90% Temperature (Wet season) =	15.9 deg C	30Q10 (Annual) =	0 MGD	- 30Q10 Mix =	100 %	90% Temp (Wet season) =	15.9 deg C
90% Maximum pH =	7.4 SU	1Q10 (Wet season) =	0 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	7.4 SU
10% Maximum pH =	SU	30Q10 (Wet season)	0 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	SU
Tier Designation (1 or 2) =	1	30Q5 =	0 MGD			Discharge Flow =	0.08 MGD
Public Water Supply (PWS) Y/N? =	n	Harmonic Mean =	0 MGD				
Trout Present Y/N? =	n						
Early Life Stages Present Y/N? =	y						

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile [C]	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin [C]	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	2.30E+01	2.29E+00	na	--	2.30E+01	2.29E+00	na	--	--	--	--	--	--	--	--	--	2.30E+01	2.29E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	2.30E+01	4.33E+00	na	--	2.30E+01	4.33E+00	na	--	--	--	--	--	--	--	--	--	2.30E+01	4.33E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine [C]	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis2-Chloroethyl Ether [C]	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform [C]	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	1.3E+01	2.6E+00	na	--	1.3E+01	2.6E+00	na	--	--	--	--	--	--	--	--	--	1.3E+01	2.6E+00	na	--
Carbon Tetrachloride [C]	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane[C]	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	1.4E+03	1.8E+02	na	--	1.4E+03	1.8E+02	na	--	--	--	--	--	--	--	--	--	1.4E+03	1.8E+02	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene [C]	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	3.7E+01	2.2E+01	na	--	3.7E+01	2.2E+01	na	--	--	--	--	--	--	--	--	--	3.7E+01	2.2E+01	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD [C]	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE [C]	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT [C]	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine[C]	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane [C]	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane [C]	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene [C]	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin [C]	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene [C]	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine[C]	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide [C]	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene [C]	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene [C]	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane Alpha-BHC [C]	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane Beta-BHC [C]	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC [C] (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane [C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone [C]	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	4.6E+02	5.2E+01	na	--	4.6E+02	5.2E+01	na	--	--	--	--	--	--	--	--	--	4.6E+02	5.2E+01	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride [C]	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	4.5E+02	5.0E+01	na	4.6E+03	4.5E+02	5.0E+01	na	4.6E+03	--	--	--	--	--	--	--	--	4.5E+02	5.0E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine [C]	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine [C]	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine [C]	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total [C]	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol [C]	0	7.7E-03	5.9E-03	na	3.0E+01	7.7E-03	5.9E-03	na	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	2.0E+01	5.0E+00	na	4.2E+03
Silver	0	2.2E+01	--	na	--	2.2E+01	--	na	--	--	--	--	--	--	--	--	--	2.2E+01	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	--	--	na	4.0E+01
Tetrachloroethylene[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	--	--	na	4.7E-01
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	--	--	na	6.0E+03
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene [C]	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	7.3E-01	2.0E-04	na	2.8E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	4.6E-01	7.2E-02	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	--	--	na	7.0E+01
1,1,2-Trichloroethane[C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	1.6E+02
Trichloroethylene [C]	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
2,4,6-Trichlorophenol [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride[C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
Zinc	0	2.9E+02	2.9E+02	na	2.6E+04	2.9E+02	2.9E+02	na	2.6E+04	--	--	--	--	--	--	--	--	2.9E+02	2.9E+02	na	2.6E+04

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
   Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	1.6E+00
Chromium III	1.1E+02
Chromium VI	6.4E+00
Copper	1.3E+01
Iron	na
Lead	3.1E+01
Manganese	na
Mercury	4.6E-01
Nickel	3.0E+01
Selenium	3.0E+00
Silver	8.6E+00
Zinc	1.2E+02

Note: do not use QL's lower than the minimum QL's provided in agency guidance

April - October

1998 Ammonia Calculations

```
Quantification level      =  .1
Number _ Quantification   =  0
Expected value            =  10
Variance                  =  36.00001
C.V.                      =  .6
97th percentile - daily   =  24.33418
97th percentile - 4 day   =  16.6379
97th percentile - 30 day  =  12.06053
daily f value             =  2.433418
4 day f value             =  1.66379
30 day f value            =  1.206053
n day f value             =  1.325799  based on  12  samples/mo
acute wla                 =  7.8
chronic WLA (4 day        =  1.78
chronic WLA (30 day)      =  1.78

lta - daily =  3.205368
lta - 4 day =  1.069847
lta - 30 day =  1.475888
Statistics used           = Reasonable potential assumptions - Type 2 data

USE 'PRINT SCREEN' FOR HARD COPY

Press enter to continue?
```

```
    LIMITS BASED ON ACUTE STANDARD
       DAILY MAX LIMIT         =  7.8
       MONTHLY AVERAGE LIMIT =  4.249673

    LIMITS BASED ON 4 DAY STANDARD
       DAILY MAX LIMIT         =  2.603384
       MONTHLY AVERAGE LIMIT =  1.418401

    LIMITS BASED ON 30 DAY STANDARD
       DAILY MAX LIMIT         =  3.591453
       MONTHLY AVERAGE LIMIT =  1.956731

  USE 'PRINT SCREEN' FOR HARD COPY
push enter to continue?
```

= 3.6 mg/l Ammonia as N

= 2.0 mg/l Ammonia as N

(

THE POLICY FOR THE POTOMAC RIVER EMBAYMENTS LIMIT FOR AMMONIA (NH_3) OF 1 MG/L IS MORE STRINGENT. THE ~~AMMONIA~~ MONTHLY AVERAGE POLICY LIMIT OF 1 mg/l NH_3 WILL BE IMPOSED AND WILL PROTECT THE AMMONIA WQS.

THE ROUTINE MULTIPLIER OF 1.5 IS USED TO CALCULATE THE WEEKLY AVERAGE MAXIMUM LIMIT OF 1.5 MG/L NH_3.

77A

10

Attachment 5

FACILITY: Harborview STP

VPDES #: VA0029416

Ammonia Calculation - Acute Ammonia Criteria for Freshwater

	Temperature	pH	TIER INFORMATION:
DATA ENTRY:->	24.2	7.80	April - October

FT

FT=10^((.03)(20-T) = 0.7481695

FPH

FPH=1 if 8.0<=pH<=9.0 = NA

FPH=((1+10^(7.4-pH))/1.25 if 6.5<=pH<8.0 = 1.1184857

FPH= **1.1184857**

Acute Criteria Concentration=.52/FT/FPH/2 = **0.3107012**

Conversion from un-ionized to Total Ammonia can be calculated by using the following formulas:
Total Acute Ammonia Criteria = Calculated un-ionized ammonia criteria divided by fraction of un-ionized Ammonia
Where: Fraction of un-ionized ammonia = 1/(10^(pKa-pH) +1) **Fraction= 0.0328128**
where: pKa = 0.09018 + (2729.92/273.2 + temperature 'C,) **pKa = 9.2694672**
Total Acute Ammonia Criteria = Calculated un-ionized Ammonia Criteria divided by fraction of un-ionized Ammonia
Total Acute Ammonia Criteria = **0.3107012** / **0.0328128068** = Total Ammonia = **9.4688997 mg/l**

Total Ammonia is then converted to Ammonia-Nitrogen.
TOTAL ACUTE N-NH3 **9.4688997 X .824** **7.8023733 MG/L** = **7.80**

Ammonia Calculation - Chronic Ammonia Criteria for Freshwater

	Temperature	pH	TIER INFORMATION:	April - October
DATA ENTRY:->	24.2	7.80		

FT

FT=10^((.03)(20-T) = 0.7481695

FPH

FPH=1 if 8.0<=pH<=9.0 = NA

FPH=((1+10^(7.4-pH))/1.25 if 6.5<=pH<8.0 = 1.1184857

FPH= **1.1184857**

Ratio

Ratio = 13.5 if 7.7<=pH<=9.0 = 13.5

Ratio = 20.25 x (10^(7.7-pH))/(1+(10^(7.4-pH)) if 6.5<=pH<7.7 = NA

Ratio = **13.5**

Chronic Criteria Concentration=.8/FT/FPH/RATIO = **0.0708151**

Conversion from un-ionized to Total Ammonia can be calculated by using the following formulas:
Total Acute Ammonia Criteria = Calculated un-ionized ammonia criteria divided by fraction of un-ionized Ammonia
Where: Fraction of un-ionized ammonia = 1/(10^(pKa-pH) +1) **Fraction= 0.0328128**
where: pKa = 0.09018 + (2729.92/273.2 + temperature 'C) **pKa = 9.2694672**
Total Acute Ammonia Criteria=Calculated un-ionized Ammonia Criteria divided by fraction of un-ionized Ammonia
Total Acute Ammonia Criteria = **0.0708151** / **0.0328128** = Total Ammonia = **2.15815378 mg/l**

Total Ammonia is then converted to Ammonia-Nitrogen.
TOTAL CHRONIC N-NH3 **2.1581538 X .824** **1.7783187 MG/L** = **1.78**

NOVEMBER - MARCH

1998 Ammonia Calculations

```
Quantification level      =  .1
Number _ Quantification   =  0
Expected value            =  10
Variance                  =  36.00001
C.V.                      =  .6
97th percentile - daily   =  24.33418
97th percentile - 4 day   =  16.6379
97th percentile - 30 day  =  12.06053
daily f value             =  2.433418
4 day f value             =  1.66379
30 day f value            =  1.206053
n day f value             =  1.325799  based on  12  samples/mo
acute wla                 =  7.9
chronic WLA (4 day        =  1.8
chronic WLA (30 day)      =  1.8

lta - daily =  3.246463
lta - 4; day =  1.081867
lta - 30 day =  1.492471
Statistics used           = Reasonable potential assumptions - Type 2 data

USE 'PRINT SCREEN' FOR HARD COPY

Press enter to continue?
```

```
    LIMITS BASED ON ACUTE STANDARD
       DAILY MAX LIMIT       =  7.9
       MONTHLY AVERAGE LIMIT =  4.304156

    LIMITS BASED ON 4 DAY STANDARD
       DAILY MAX LIMIT       =  2.632635
       MONTHLY AVERAGE LIMIT =  1.434338

    LIMITS BASED ON 30 DAY STANDARD:
       DAILY MAX LIMIT       =  3.631806
       MONTHLY AVERAGE LIMIT =  1.978717

  USE 'PRINT SCREEN' FOR HARD COPY
push enter to continue?
```

= 3.6 mg/L Ammonia as N

= 2.0 mg/L Ammonia as N

DATA

10

FACILITY: Harborview STP

VPDES #: VA0029416

Ammonia Calculation - Acute Ammonia Criteria for Freshwater

	Temperature	pH	TIER INFORMATION:
DATA ENTRY:->	17.2	7.80	November - March

FT

FT=10^((.03)(20-T) = 1.2133889

FPH

FPH=1 if 8.0<=pH<=9.0 = NA

FPH=((1+10^(7.4-pH))/1.25 if 6.5<=pH<8.0 = 1.1184857

FPH= **1.1184857**

Acute Criteria Concentration=.52/FT/FPH/2 = **0.1915768**

Conversion from un-ionized to Total Ammonia can be calculated by using the following formulas:

Total Acute Ammonia Criteria = Calculated un-ionized ammonia criteria divided by fraction of un-ionized Ammonia

Where: Fraction of un-ionized ammonia = 1/(10^(pKa-pH) +1) **Fraction= 0.0199759**

where: pKa = 0.09018 + (2729.92/273.2 + temperature 'C,) **pKa = 9.4907310**

Total Acute Ammonia Criteria = Calculated un-ionized Ammonia Criteria divided by fraction of un-ionized Ammonia

Total Acute Ammonia Criteria = **0.1915768** / **0.0199758746** = Total Ammonia = **9.5904083 mg/l**

Total Ammonia is then converted to Ammonia-Nitrogen.

TOTAL ACUTE N-NH3 **9.5904083 X .824** **7.9024964 MG/L** = 7.90

Ammonia Calculation - Chronic Ammonia Criteria for Freshwater

	Temperature	pH	TIER INFORMATION:	November - March
DATA ENTRY:->	17.2	7.80		

FT

FT=10^((.03)(20-T) = 1.2133889

FPH

FPH=1 if 8.0<=pH<=9.0 = NA

FPH=((1+10^(7.4-pH))/1.25 if 6.5<=pH<8.0 = 1.1184857

FPH= **1.1184857**

Ratio

Ratio = 13.5 if 7.7<=pH<=9.0 = 13.5

Ratio = 20.25 x (10^(7.7-pH))/(1+(10^(7.4-pH)) if 6.5<=pH<7.7 = NA

Ratio = **13.5**

Chronic Criteria Concentration=.8/FT/FPH/RATIO = **0.0436642**

Conversion from un-ionized to Total Ammonia can be calculated by using the following formulas:

Total Acute Ammonia Criteria = Calculated un-ionized ammonia criteria divided by fraction of un-ionized Ammonia

Where: Fraction of un-ionized ammonia = 1/(10^(pKa-pH) +1) **Fraction= 0.0199759**

where: pKa = 0.09018 + (2729.92/273.2 + temperature 'C) **pKa = 9.4907310**

Total Acute Ammonia Criteria=Calculated un-ionized Ammonia Criteria divided by fraction of un-ionized Ammonia

Total Acute Ammonia Criteria = **0.0436642** / **0.0199759** = Total Ammonia = **2.18584804 mg/l**

Total Ammonia is then converted to Ammonia-Nitrogen.

TOTAL CHRONIC N-NH3 **2.1858480 X .824** **1.8011388 MG/L** = 1.80

November to March

2003 Ammonia Calculations -

Facility = Harborview STP
Chemical = Ammonia - N
Chronic averaging period = 30
WLAa = 7.9
WLAc = 1.8
Q.L. = 0.2
# samples/mo. = 12
# samples/wk. = 3

Summary of Statistics:

observations = 1
Expected Value = 20
Variance = 144
C.V. = 0.6
97th percentile daily values = 48.6683
97th percentile 4 day average = 33.2758
97th percentile 30 day average= 24.1210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 3.63180616814936
Average Weekly limit = 2.65646174102951 = 2.6 mg/L
Average Monthly LImit = 1.97871678522638 = 2.0 mg/L

The data are:

20

90th Percentile Determination HAI REVIEW (TEMPERATURE)

NOVEMBER - MARCH

	Temperatur	Point	Sample	Rank		Percent
Nov 93	16.8	303	21.5	1	100.00%	
	15.5	152	20.1	2	99.83%	
	15.8	462	19.7	3	99.67%	
	16.3	461	19.6	4	99.50%	
	15.8	307	19.5	5	99.01%	
	15.3	457	19.5	5	99.01%	
	13.8	463	19.5	5	99.01%	
	14.7	304	19.3	8	98.18%	
	14	305	19.3	8	98.18%	
	14.3	311	19.3	8	98.18%	
	13.9	459	19.3	8	98.18%	
	17.6	460	19.3	8	98.18%	
	17.3	455	19.2	13	97.68%	
	17.8	456	19.2	13	97.68%	
	18.8	458	19.2	13	97.68%	
	17.2	308	19.1	16	97.52%	
	17.4	137	19	17	97.35%	
	17.2	15	18.8	18	97.02%	
	17.8	340	18.8	18	97.02%	
	17.3	153	18.6	20	96.52%	
	17.1	306	18.6	20	96.52%	
	16.9	310	18.6	20	96.52%	
	16	309	18.2	23	96.19%	
	16.3	321	18.2	23	96.19%	
	15.9	315	18.1	25	95.86%	
	15.2	318	18.1	25	95.86%	
	15.5	312	18	27	94.70%	
	16.1	314	18	27	94.70%	
	15.8	316	18	27	94.70%	
	16.7	319	18	27	94.70%	
Dec 93	15.8	322	18	27	94.70%	
	16.2	329	18	27	94.70%	
	14.9	464	18	27	94.70%	
	15.3	317	17.9	34	94.37%	
	15.4	334	17.9	34	94.37%	
	15.2	14	17.8	36	94.04%	
	16.2	19	17.8	36	94.04%	
	15.6	328	17.7	38	93.54%	
	15.7	347	17.7	38	93.54%	
	16.3	480	17.7	38	93.54%	
	15.7	12	17.6	41	92.55%	
	14.8	320	17.6	41	92.55%	
	13.7	324	17.6	41	92.55%	
	13.7	333	17.6	41	92.55%	
	14.3	336	17.6	41	92.55%	
	14.8	346	17.6	41	92.55%	
	14.1	335	17.5	47	92.38%	
	14.5	17	17.4	48	91.89%	
	14.6	478	17.4	48	91.89%	
	14.6	479	17.4	48	91.89%	
	14.7	13	17.3	51	90.73%	
	14	20	17.3	51	90.73%	
	14.3	156	17.3	51	90.73%	
	14	167	17.3	51	90.73%	
	13.8	323	17.3	51	90.73%	
	13.8	326	17.3	51	90.73%	
	13.4	345	17.3	51	90.73%	
	13.2	16	17.2	58	88.91%	
	13.2	18	17.2	58	88.91%	
	13.8	157	17.2	58	88.91%	
	13.6	325	17.2	58	88.91%	
Jan 94	13.7	332	17.2	58	88.91%	
	12.9	465	17.2	58	88.91%	
	12.7	466	17.2	58	88.91%	
	13	467	17.2	58	88.91%	
	12.3	477	17.2	58	88.91%	
	12.4	481	17.2	58	88.91%	
	12.8	486	17.2	58	88.91%	
	12.3	21	17.1	69	88.25%	
	11.8	164	17.1	69	88.25%	
	11.4	337	17.1	69	88.25%	
	11.4	338	17.1	69	88.25%	
	10.8	327	17	73	87.75%	
	11.8	339	17	73	87.75%	
	11.4	488	17	73	87.75%	
	10.8	22	16.9	76	86.75%	
	10.4	469	16.9	76	86.75%	
	10.2	475	16.9	76	86.75%	
	10.1	476	16.9	76	86.75%	
	10.8	482	16.9	76	86.75%	
	10.8	485	16.9	76	86.75%	
	10.5	1	16.8	82	86.09%	
	10.8	188	16.8	82	86.09%	

605 POSITIONS x .90
= 544.5 = 545 UP
OR 61 DOWN
= 17.2°C

730 POSITIONS x .90
= 657 UP OR
74 DOWN
= 24.2°C

APRIL - OCTOBER

	Temperature	Point	Sample	Rank		Percent
Sept 93	28	1	28	1	100.00%	
	27	2	27	2	99.31%	
	27	3	27	2	99.31%	
	27	4	27	2	99.31%	
	27	5	27	2	99.31%	
	27	6	27	2	99.31%	
	25.5	456	26.8	7	99.18%	
	25.4	398	26.3	8	98.76%	
	23.6	410	26.3	8	98.76%	
	20.4	411	26.3	8	98.76%	
	22.6	396	26.2	11	98.35%	
	23.8	397	26.2	11	98.35%	
	24.2	409	26.2	11	98.35%	
	23.9	413	26.1	14	98.21%	
	23.4	388	25.8	15	97.80%	
	23.5	392	25.8	15	97.80%	
	22.9	393	25.8	15	97.80%	
	19.3	389	25.7	18	97.66%	
	20.2	394	25.6	19	97.53%	
	19.7	7	25.5	20	96.84%	
	19	380	25.5	20	96.84%	
	21.4	385	25.5	20	96.84%	
	21.2	391	25.5	20	96.84%	
	20.8	399	25.5	20	96.84%	
	21.4	8	25.4	25	96.15%	
	19.2	383	25.4	25	96.15%	
	19	386	25.4	25	96.15%	
	19.3	390	25.4	25	96.15%	
Oct 93	17.2	412	25.4	25	96.15%	
	18.1	381	25.3	30	95.80%	
	19.1	382	25.3	30	95.80%	
	18	385	25.3	30	95.80%	
	18.2	408	25.3	30	95.80%	
	17.4	439	25.2	34	95.47%	
	18.2	384	25.1	35	94.92%	
	18.5	387	25.1	35	94.92%	
	19.1	414	25.1	35	94.92%	
	19	440	25.1	35	94.92%	
	17.7	438	25	39	94.78%	
	18.7	377	24.9	40	94.09%	
	18.7	378	24.9	40	94.09%	
	19.4	421	24.9	40	94.09%	
	18	422	24.9	40	94.09%	
	18.2	431	24.9	40	94.09%	
	18.1	400	24.8	45	93.68%	
	20.7	415	24.8	45	93.68%	
	21	417	24.8	45	93.68%	
	20.7	406	24.7	48	92.99%	
	21.8	407	24.7	48	92.99%	
	18	416	24.7	48	92.99%	
	18.5	423	24.7	48	92.99%	
	18.6	424	24.7	48	92.99%	
	12.4	172	24.6	53	92.86%	
	18	425	24.5	54	92.72%	
	17.7	170	24.4	55	92.03%	
	17.2	171	24.4	55	92.03%	
	19.7	379	24.4	55	92.03%	
	18.9	405	24.4	55	92.03%	
	18.8	615	24.4	55	92.03%	
Apr 94	13.6	432	24.3	60	91.07%	
	12.9	602	24.3	60	91.07%	
	13.5	612	24.3	60	91.07%	
	13.6	613	24.3	60	91.07%	
	13.4	614	24.3	60	91.07%	
	13.4	616	24.3	60	91.07%	
	12.6	618	24.3	60	91.07%	
	13.2	13	24.2	67	89.29%	
	12.9	166	24.2	67	89.29%	
	13.6	169	24.2	67	89.29%	
	14.3	186	24.2	67	89.29%	
	14.4	194	24.2	67	89.29%	
	14.6	195	24.2	67	89.29%	
	14.7	404	24.2	67	89.29%	
	14.7	427	24.2	67	89.29%	
	14.3	433	24.2	67	89.29%	
	13.9	611	24.2	67	89.29%	
	14.9	617	24.2	67	89.29%	
	15.3	619	24.2	67	89.29%	
	16.2	631	24.2	67	89.29%	
	16.1	370	24.1	80	88.87%	
	15.2	603	24.1	80	88.87%	
	14.8	604	24.1	80	88.87%	
	15.2	164	24	83	88.05%	

90th Percentile Determination

	10.9	473	16.8	82	86.09%
	10.9	474	16.8	82	86.09%
	10.9	30	16.7	86	85.10%
	10.8	159	16.7	86	85.10%
	10.4	186	16.7	86	85.10%
	10.4	343	16.7	86	85.10%
	10.4	483	16.7	86	85.10%
	10.6	484	16.7	86	85.10%
	10.9	158	16.6	92	84.27%
Feb 94	10.8	181	16.6	92	84.27%
	12.9	187	16.6	92	84.27%
	12.6	342	16.6	92	84.27%
	12.8	472	16.6	92	84.27%
	12	155	16.5	97	83.94%
	12.8	487	16.5	97	83.94%
	13.4	171	16.4	99	83.44%
	11.5	172	16.4	99	83.44%
	12.4	471	16.4	99	83.44%
	11.6	4	16.3	102	82.28%
	11.3	24	16.3	102	82.28%
	11.6	40	16.3	102	82.28%
	11.7	154	16.3	102	82.28%
	11.7	166	16.3	102	82.28%
	12.2	331	16.3	102	82.28%
	12.4	488	16.3	102	82.28%
	12.4	32	16.2	109	81.29%
	13	37	16.2	109	81.29%
	13.1	169	16.2	109	81.29%
	12.9	173	16.2	109	81.29%
	12.9	344	16.2	109	81.29%
	12.9	348	16.2	109	81.29%
	12.4	28	16.1	115	81.13%
	12.8	23	16	116	80.30%
	12.8	160	16	116	80.30%
	12.4	162	16	116	80.30%
	12	165	16	116	80.30%
	12	168	16	116	80.30%
Mar 94	12	25	15.9	121	79.97%
	12.2	349	15.9	121	79.97%
	11.9	3	15.8	123	78.81%
	13.3	5	15.8	123	78.81%
	11.8	29	15.8	123	78.81%
	12.2	31	15.8	123	78.81%
	12.4	170	15.8	123	78.81%
	12.4	470	15.8	123	78.81%
	13.2	495	15.8	123	78.81%
	12.3	39	15.7	130	78.31%
	12.3	41	15.7	130	78.31%
	11.8	178	15.7	130	78.31%
	11.6	38	15.6	133	77.98%
	12.2	350	15.6	133	77.98%
	12.6	2	15.5	135	77.48%
	12.8	27	15.5	135	77.48%
	19	163	15.5	135	77.48%
	12.9	35	15.4	138	77.15%
	12.3	313	15.4	138	77.15%
	12.4	6	15.3	140	75.66%
	13.4	34	15.3	140	75.66%
	13.4	199	15.3	140	75.66%
	13.7	200	15.3	140	75.66%
	13.2	351	15.3	140	75.66%
	12.2	352	15.3	140	75.66%
	12.9	453	15.3	140	75.66%
	12.9	499	15.3	140	75.66%
	13.4	500	15.3	140	75.66%
	13.4	26	15.2	149	74.17%
	13.6	36	15.2	149	74.17%
	13.4	176	15.2	149	74.17%
Nov 94	20.1	177	15.2	149	74.17%
	18.6	454	15.2	149	74.17%
	16.3	497	15.2	149	74.17%
	16.5	498	15.2	149	74.17%
	17.3	501	15.2	149	74.17%
	17.2	502	15.2	149	74.17%
	16.6	174	15.1	158	73.18%
	16.7	179	15.1	158	73.18%
	16	189	15.1	158	73.18%
	16.6	489	15.1	158	73.18%
	16	519	15.1	158	73.18%
	15.5	520	15.1	158	73.18%
	17.1	175	15	164	72.52%
	16	490	15	164	72.52%
	16.3	503	15	164	72.52%
	17.3	521	15	164	72.52%

	15.7	167	24	83	88.05%
	15.7	369	24	83	88.05%
	16.2	601	24	83	88.05%
	15.2	609	24	83	88.05%
	15.2	610	24	83	88.05%
	15.8	14	23.9	89	86.81%
May 94	15.3	359	23.9	89	86.81%
	15.1	577	23.9	89	86.81%
	15.1	578	23.9	89	86.81%
	16	594	23.9	89	86.81%
	15.7	600	23.9	89	86.81%
	16	608	23.9	89	86.81%
	15.2	629	23.9	89	86.81%
	14.9	630	23.9	89	86.81%
	15.3	12	23.8	98	83.93%
	17.3	165	23.8	98	83.93%
	17.1	168	23.8	98	83.93%
	17.5	185	23.8	98	83.93%
	17.6	190	23.8	98	83.93%
	17.3	203	23.8	98	83.93%
	17.6	209	23.8	98	83.93%
	17.7	210	23.8	98	83.93%
	17.3	367	23.8	98	83.93%
	16.9	375	23.8	98	83.93%
	16.4	376	23.8	98	83.93%
	16.4	592	23.8	98	83.93%
	16.3	593	23.8	98	83.93%
	16.9	595	23.8	98	83.93%
	17.6	599	23.8	98	83.93%
	17.4	606	23.8	98	83.93%
	18.6	607	23.8	98	83.93%
	18.6	620	23.8	98	83.93%
	17.1	632	23.8	98	83.93%
	16.6	635	23.8	98	83.93%
	18.2	638	23.8	98	83.93%
	18.4	388	23.7	119	82.97%
	19.1	403	23.7	119	82.97%
June 94	19.3	586	23.7	119	82.97%
	18.7	605	23.7	119	82.97%
	18.8	624	23.7	119	82.97%
	19.3	634	23.7	119	82.97%
	19.5	639	23.7	119	82.97%
	19.8	9	23.6	126	79.53%
	19.6	159	23.6	126	79.53%
	19	182	23.6	126	79.53%
	18	184	23.6	126	79.53%
	18.1	187	23.6	126	79.53%
	18.3	193	23.6	126	79.53%
	19.1	202	23.6	126	79.53%
	18.8	353	23.6	126	79.53%
	20.4	357	23.6	126	79.53%
	20.3	358	23.6	126	79.53%
	20.7	366	23.6	126	79.53%
	21.3	371	23.6	126	79.53%
	21.5	373	23.6	126	79.53%
	21.2	374	23.6	126	79.53%
	21.3	426	23.6	126	79.53%
	21.4	430	23.6	126	79.53%
	21.7	434	23.6	126	79.53%
	21.3	579	23.6	126	79.53%
	21.4	584	23.6	126	79.53%
	22.7	585	23.6	126	79.53%
	22.5	598	23.6	126	79.53%
	21.8	623	23.6	126	79.53%
	22	626	23.6	126	79.53%
	22.3	633	23.6	126	79.53%
	22.6	640	23.6	126	79.53%
July 94	22.3	16	23.5	151	78.98%
	22.6	402	23.5	151	78.98%
	22.7	625	23.5	151	78.98%
	22.1	627	23.5	151	78.98%
	22.3	15	23.4	155	76.92%
	22.7	163	23.4	155	76.92%
	21.8	181	23.4	155	76.92%
	22.2	214	23.4	155	76.92%
	23.6	221	23.4	155	76.92%
	22.4	222	23.4	155	76.92%
	21	223	23.4	155	76.92%
	23.6	343	23.4	155	76.92%
	23.4	401	23.4	155	76.92%
	24	419	23.4	155	76.92%
	23.8	583	23.4	155	76.92%
	24.2	621	23.4	155	76.92%
	24	622	23.4	155	76.92%

90th Percentile Determination

	16	33	14.9	168	71.85%
	16.2	491	14.9	168	71.85%
	15.8	515	14.9	168	71.85%
	16.4	522	14.9	168	71.85%
	16.4	42	14.8	172	69.87%
	16.2	46	14.8	172	69.87%
	15.1	195	14.8	172	69.87%
	15	197	14.8	172	69.87%
	15.2	226	14.8	172	69.87%
	15.2	355	14.8	172	69.87%
	15.7	419	14.8	172	69.87%
	15.1	493	14.8	172	69.87%
	14.2	494	14.8	172	69.87%
	14.2	496	14.8	172	69.87%
Dec 94	13.3	514	14.8	172	69.87%
	13	518	14.8	172	69.87%
	13.8	8	14.7	184	68.71%
	14.3	51	14.7	184	68.71%
	16.7	354	14.7	184	68.71%
	16.6	492	14.7	184	68.71%
	16.8	507	14.7	184	68.71%
	15.1	513	14.7	184	68.71%
	13.9	523	14.7	184	68.71%
	14.2	49	14.6	191	67.72%
	13.8	50	14.6	191	67.72%
	13.6	198	14.6	191	67.72%
	12.8	418	14.6	191	67.72%
	14.8	420	14.6	191	67.72%
	14.4	576	14.6	191	67.72%
	14.8	48	14.5	197	66.89%
	14.6	207	14.5	197	66.89%
	15.3	353	14.5	197	66.89%
	15.3	414	14.5	197	66.89%
	13.2	416	14.5	197	66.89%
	13	196	14.4	202	66.06%
	13	504	14.4	202	66.06%
	14.1	508	14.4	202	66.06%
	13.8	512	14.4	202	66.06%
	14.2	574	14.4	202	66.06%
	14.5	10	14.3	207	64.40%
	12.8	45	14.3	207	64.40%
	13.3	53	14.3	207	64.40%
	13.1	185	14.3	207	64.40%
	13.8	330	14.3	207	64.40%
	12.9	415	14.3	207	64.40%
Jan 95	13.3	417	14.3	207	64.40%
	13.1	511	14.3	207	64.40%
	11.4	516	14.3	207	64.40%
	11.2	517	14.3	207	64.40%
	11.1	180	14.2	217	63.58%
	11	181	14.2	217	63.58%
	11.5	191	14.2	217	63.58%
	11.7	206	14.2	217	63.58%
	11.9	524	14.2	217	63.58%
	11.4	47	14.1	222	62.91%
	11.1	204	14.1	222	62.91%
	13.6	288	14.1	222	62.91%
	13.7	291	14.1	222	62.91%
	14.8	9	14	226	62.09%
	13.9	52	14	226	62.09%
	13.8	54	14	226	62.09%
	13.8	505	14	226	62.09%
	12.1	506	14	226	62.09%
	12.1	11	13.9	231	60.26%
	12.7	190	13.9	231	60.26%
	13.4	227	13.9	231	60.26%
	13.3	421	13.9	231	60.26%
	13.1	509	13.9	231	60.26%
	13.4	510	13.9	231	60.26%
	13.3	525	13.9	231	60.26%
	11	571	13.9	231	60.26%
	11.4	572	13.9	231	60.26%
	12.3	573	13.9	231	60.26%
	12.3	575	13.9	231	60.26%
	11.8	7	13.8	242	57.12%
	11.8	55	13.8	242	57.12%
Feb 95	12.3	56	13.8	242	57.12%
	12.3	60	13.8	242	57.12%
	11.6	184	13.8	242	57.12%
	11.6	192	13.8	242	57.12%
	11.3	205	13.8	242	57.12%
	10.2	211	13.8	242	57.12%
	10.3	228	13.8	242	57.12%
	10.3	229	13.8	242	57.12%

	23.8	628	23.4	155	76.92%
	24.2	636	23.4	155	76.92%
	24.4	188	23.3	170	76.24%
	24.4	208	23.3	170	76.24%
	24.6	238	23.3	170	76.24%
	22.7	418	23.3	170	76.24%
	23.1	587	23.3	170	76.24%
	23.1	191	23.2	175	75.14%
	22.8	192	23.2	175	75.14%
	23	201	23.2	175	75.14%
	22.8	341	23.2	175	75.14%
	22.4	365	23.2	175	75.14%
	22.6	428	23.2	175	75.14%
	23.4	637	23.2	175	75.14%
Aug 94	22.8	641	23.2	175	75.14%
	22.6	174	23.1	183	73.90%
	23.6	175	23.1	183	73.90%
	23.8	228	23.1	183	73.90%
	24.2	230	23.1	183	73.90%
	23.6	342	23.1	183	73.90%
	23.3	354	23.1	183	73.90%
	23	596	23.1	183	73.90%
	23.8	597	23.1	183	73.90%
	23.2	642	23.1	183	73.90%
	23.2	177	23	192	73.21%
	23.6	189	23	192	73.21%
	24.2	355	23	192	73.21%
	24.2	420	23	192	73.21%
	22.8	429	23	192	73.21%
	22.4	17	22.9	197	72.25%
	22.3	336	22.9	197	72.25%
	22.3	362	22.9	197	72.25%
	22.8	363	22.9	197	72.25%
	23.2	436	22.9	197	72.25%
	23.6	437	22.9	197	72.25%
	23.8	582	22.9	197	72.25%
	21.3	176	22.8	204	69.64%
	21.6	178	22.8	204	69.64%
	22.3	182	22.8	204	69.64%
	22.7	196	22.8	204	69.64%
	23.3	200	22.8	204	69.64%
	23.8	212	22.8	204	69.64%
	23.8	215	22.8	204	69.64%
	21.6	226	22.8	204	69.64%
	22.8	229	22.8	204	69.64%
Sept 94	22.6	239	22.8	204	69.64%
	23.4	339	22.8	204	69.64%
	22.8	340	22.8	204	69.64%
	22.4	364	22.8	204	69.64%
	21.9	372	22.8	204	69.64%
	22	441	22.8	204	69.64%
	22	643	22.8	204	69.64%
	21	649	22.8	204	69.64%
	23.4	650	22.8	204	69.64%
	23.4	651	22.8	204	69.64%
	23.4	145	22.7	223	67.99%
	22	153	22.7	223	67.99%
	22.4	156	22.7	223	67.99%
	22.8	173	22.7	223	67.99%
	22.6	207	22.7	223	67.99%
	23.1	337	22.7	223	67.99%
	22.8	576	22.7	223	67.99%
	23.1	581	22.7	223	67.99%
	20.8	589	22.7	223	67.99%
	20.1	590	22.7	223	67.99%
	19.7	644	22.7	223	67.99%
	20.3	647	22.7	223	67.99%
	20.2	11	22.6	235	65.52%
	20.4	150	22.6	235	65.52%
	21.6	152	22.6	235	65.52%
	23.3	180	22.6	235	65.52%
	22.8	183	22.6	235	65.52%
	21.8	213	22.6	235	65.52%
	20.8	227	22.6	235	65.52%
	19.3	335	22.6	235	65.52%
Oct 94	20.5	350	22.6	235	65.52%
	19.3	358	22.6	235	65.52%
	19.2	360	22.6	235	65.52%
	18	442	22.6	235	65.52%
	18.1	575	22.6	235	65.52%
	17.6	591	22.6	235	65.52%
	17	645	22.6	235	65.52%
	17.2	646	22.6	235	65.52%
	19.7	648	22.6	235	65.52%

90th Percentile Determination

	10.6	278	13.8	242	57.12%
	11.7	279	13.8	242	57.12%
	11	385	13.8	242	57.12%
	11	422	13.8	242	57.12%
	10.9	423	13.8	242	57.12%
	10.9	570	13.8	242	57.12%
	10.9	577	13.8	242	57.12%
	11.2	603	13.8	242	57.12%
	11.2	604	13.8	242	57.12%
	11.3	43	13.7	261	54.64%
	11.7	44	13.7	261	54.64%
	12	62	13.7	261	54.64%
	12.1	143	13.7	261	54.64%
	11.8	225	13.7	261	54.64%
	12.1	289	13.7	261	54.64%
	12.1	295	13.7	261	54.64%
	11.3	296	13.7	261	54.64%
	11.5	436	13.7	261	54.64%
	11.2	447	13.7	261	54.64%
	11.2	448	13.7	261	54.64%
Mar 95	11.3	526	13.7	261	54.64%
	11.3	530	13.7	261	54.64%
	11.7	531	13.7	261	54.64%
	11.3	569	13.7	261	54.64%
	11.7	61	13.6	276	52.98%
	12.9	150	13.6	276	52.98%
	13.8	193	13.6	276	52.98%
	13.8	224	13.6	276	52.98%
	10.4	283	13.6	276	52.98%
	12.9	292	13.6	276	52.98%
	13.2	446	13.6	276	52.98%
	13.6	529	13.6	276	52.98%
	13	596	13.6	276	52.98%
	12.9	601	13.6	276	52.98%
	12.9	290	13.5	286	51.99%
	13.3	527	13.5	286	51.99%
	14.1	528	13.5	286	51.99%
	13.7	567	13.5	286	51.99%
	13.5	579	13.5	286	51.99%
	14.1	602	13.5	286	51.99%
	13.6	57	13.4	292	49.17%
	13.4	99	13.4	292	49.17%
	13.3	141	13.4	292	49.17%
	13.7	142	13.4	292	49.17%
	13.7	148	13.4	292	49.17%
	13	149	13.4	292	49.17%
	13.2	151	13.4	292	49.17%
	13.1	233	13.4	292	49.17%
	13.3	236	13.4	292	49.17%
	13.3	293	13.4	292	49.17%
	13.3	452	13.4	292	49.17%
Nov 95	21.5	566	13.4	292	49.17%
	19.3	568	13.4	292	49.17%
	19.3	584	13.4	292	49.17%
	18.6	585	13.4	292	49.17%
	19.5	594	13.4	292	49.17%
	19.1	597	13.4	292	49.17%
	18.2	124	13.3	309	46.36%
	18.6	182	13.3	309	46.36%
	19.3	209	13.3	309	46.36%
	18	213	13.3	309	46.36%
	15.4	234	13.3	309	46.36%
	18	237	13.3	309	46.36%
	18.1	287	13.3	309	46.36%
	18	294	13.3	309	46.36%
	17.9	300	13.3	309	46.36%
	18.1	301	13.3	309	46.36%
	18	302	13.3	309	46.36%
	17.6	365	13.3	309	46.36%
	18.2	445	13.3	309	46.36%
	18	451	13.3	309	46.36%
	17.3	580	13.3	309	46.36%
	17.6	582	13.3	309	46.36%
	17.2	586	13.3	309	46.36%
	17.3	58	13.2	326	44.04%
	17	59	13.2	326	44.04%
	17.7	129	13.2	326	44.04%
	18	144	13.2	326	44.04%
	14.3	201	13.2	326	44.04%
	16.3	282	13.2	326	44.04%
	17.2	298	13.2	326	44.04%
Dec 95	17.6	364	13.2	326	44.04%
	17.9	384	13.2	326	44.04%
	17.5	427	13.2	326	44.04%

	20.4	852	22.6	235	65.52%
	17.8	148	22.5	253	65.11%
	17.1	326	22.5	253	65.11%
	17.9	569	22.5	253	65.11%
	17.9	160	22.4	256	63.32%
	18.4	179	22.4	256	63.32%
	18.5	197	22.4	256	63.32%
	17.9	216	22.4	256	63.32%
	18.3	225	22.4	256	63.32%
	18.3	327	22.4	256	63.32%
	17.1	328	22.4	256	63.32%
	17.3	334	22.4	256	63.32%
	17.8	349	22.4	256	63.32%
	17.2	361	22.4	256	63.32%
	16.7	567	22.4	256	63.32%
	18.2	568	22.4	256	63.32%
	17.7	580	22.4	256	63.32%
	16.5	149	22.3	269	61.81%
	16	151	22.3	269	61.81%
	16.8	155	22.3	269	61.81%
	17.1	198	22.3	269	61.81%
	18.9	199	22.3	269	61.81%
Apr 95	13.7	206	22.3	269	61.81%
	13.7	344	22.3	269	61.81%
	12.8	352	22.3	269	61.81%
	12.8	573	22.3	269	61.81%
	14.7	574	22.3	269	61.81%
	14.3	653	22.3	269	61.81%
	14.7	158	22.2	280	60.99%
	13.8	329	22.2	280	60.99%
	14.5	537	22.2	280	60.99%
	14.1	566	22.2	280	60.99%
	14.2	654	22.2	280	60.99%
	14.2	655	22.2	280	60.99%
	12.6	154	22.1	286	60.03%
	12.5	539	22.1	286	60.03%
	13.8	540	22.1	286	60.03%
	15.5	570	22.1	286	60.03%
	15.4	588	22.1	286	60.03%
	15.8	656	22.1	286	60.03%
	17.3	658	22.1	286	60.03%
	18.1	148	22	293	58.65%
	17.1	218	22	293	58.65%
	15.4	219	22	293	58.65%
	15.1	224	22	293	58.65%
	15.5	538	22	293	58.65%
	16.3	565	22	293	58.65%
	17	571	22	293	58.65%
	17.2	572	22	293	58.65%
	17.4	657	22	293	58.65%
	15.2	659	22	293	58.65%
	15.7	217	21.9	303	58.10%
May 95	15.4	561	21.9	303	58.10%
	15.2	563	21.9	303	58.10%
	16.9	564	21.9	303	58.10%
	17.1	49	21.8	307	57.28%
	17.5	147	21.8	307	57.28%
	16.3	157	21.8	307	57.28%
	16.6	240	21.8	307	57.28%
	16.6	562	21.8	307	57.28%
	18.3	661	21.8	307	57.28%
	18.5	142	21.7	313	56.59%
	18.3	330	21.7	313	56.59%
	18.6	338	21.7	313	56.59%
	20.1	435	21.7	313	56.59%
	17.9	460	21.7	313	56.59%
	19.6	205	21.6	318	55.91%
	20.4	211	21.6	318	55.91%
	20.3	237	21.6	318	55.91%
	19.5	445	21.6	318	55.91%
	20	541	21.6	318	55.91%
	20.5	138	21.5	323	55.63%
	20.2	660	21.5	323	55.63%
	20.6	22	21.4	325	53.98%
	22.5	25	21.4	325	53.98%
	22.4	141	21.4	325	53.98%
	22.4	144	21.4	325	53.98%
	22.2	333	21.4	325	53.98%
	21.7	443	21.4	325	53.98%
	21	444	21.4	325	53.98%
	20.7	451	21.4	325	53.98%
	21.4	453	21.4	325	53.98%
	22.4	458	21.4	325	53.98%
June 95	22.6	459	21.4	325	53.98%

90th Percentile Determination

	17.6	578	13.2	326	44.04%		22.9	536	21.4	325	53.98%
	17.1	599	13.2	326	44.04%		22.7	137	21.3	337	52.88%
	17.1	600	13.2	326	44.04%		21.7	140	21.3	337	52.88%
	17	605	13.2	326	44.04%		22.8	143	21.3	337	52.88%
	18.8	111	13.1	340	42.38%		22.8	204	21.3	337	52.88%
	12.4	210	13.1	340	42.38%		23.2	446	21.3	337	52.88%
	16.6	214	13.1	340	42.38%		23.1	450	21.3	337	52.88%
	16.7	235	13.1	340	42.38%		23.4	454	21.3	337	52.88%
	16.2	299	13.1	340	42.38%		22.3	663	21.3	337	52.88%
	17.3	366	13.1	340	42.38%		20.6	23	21.2	345	51.37%
	17.6	428	13.1	340	42.38%		20.5	139	21.2	345	51.37%
	17.7	435	13.1	340	42.38%		21.2	347	21.2	345	51.37%
	16.2	444	13.1	340	42.38%		20.9	351	21.2	345	51.37%
	15.9	595	13.1	340	42.38%		22.4	448	21.2	345	51.37%
	15.6	65	13	350	39.40%		22.6	452	21.2	345	51.37%
	15.3	110	13	350	39.40%		21.2	457	21.2	345	51.37%
	15.3	183	13	350	39.40%		22.3	535	21.2	345	51.37%
	14.5	202	13	350	39.40%		23.6	662	21.2	345	51.37%
	14.7	203	13	350	39.40%		23.1	664	21.2	345	51.37%
	14.8	284	13	350	39.40%		23	665	21.2	345	51.37%
	12.3	297	13	350	39.40%		22.6	447	21.1	356	51.10%
	12.2	437	13	350	39.40%		23.6	455	21.1	356	51.10%
	12.6	438	13	350	39.40%		23.6	47	21	358	50.41%
	12.8	439	13	350	39.40%		23.9	161	21	358	50.41%
	12.2	440	13	350	39.40%		22.6	220	21	358	50.41%
	12.6	449	13	350	39.40%		22.4	331	21	358	50.41%
	12.8	450	13	350	39.40%		22.9	666	21	358	50.41%
	12.8	581	13	350	39.40%		22.9	348	20.9	363	49.86%
Jan 96	13.2	583	13	350	39.40%		22.8	560	20.9	363	49.86%
	13.3	588	13	350	39.40%	July 95	23.2	668	20.9	363	49.86%
	13.1	589	13	350	39.40%		23.6	670	20.9	363	49.86%
	12.8	598	13	350	39.40%		23.8	24	20.8	367	49.04%
	12.2	63	12.9	368	36.75%		23.7	231	20.8	367	49.04%
	12.3	94	12.9	368	36.75%		24	241	20.8	367	49.04%
	12.3	112	12.9	368	36.75%		24.1	467	20.8	367	49.04%
	12.3	113	12.9	368	36.75%		23.6	558	20.8	367	49.04%
	12.1	114	12.9	368	36.75%		22.8	559	20.8	367	49.04%
	12	138	12.9	368	36.75%		23.6	46	20.7	373	47.53%
	12.6	146	12.9	368	36.75%		23.6	48	20.7	373	47.53%
	12.3	147	12.9	368	36.75%		23.8	136	20.7	373	47.53%
	12.3	212	12.9	368	36.75%		23.8	332	20.7	373	47.53%
	12.7	277	12.9	368	36.75%		24.9	461	20.7	373	47.53%
	12.4	281	12.9	368	36.75%		24.9	463	20.7	373	47.53%
	12.5	285	12.9	368	36.75%		24.4	467	20.7	373	47.53%
	12.6	286	12.9	368	36.75%		25.5	534	20.7	373	47.53%
	12.1	382	12.9	368	36.75%		25.3	556	20.7	373	47.53%
	12.9	390	12.9	368	36.75%		25.3	667	20.7	373	47.53%
	12.7	434	12.9	368	36.75%		25.4	669	20.7	373	47.53%
	13.2	68	12.8	384	32.78%		25.1	325	20.6	384	46.57%
	13.8	96	12.8	384	32.78%		25.5	345	20.6	384	46.57%
	12.7	98	12.8	384	32.78%		25.4	449	20.6	384	46.57%
	12.8	116	12.8	384	32.78%		25.1	533	20.6	384	46.57%
	12.8	117	12.8	384	32.78%		25.8	557	20.6	384	46.57%
	12.8	136	12.8	384	32.78%		25.7	665	20.6	384	46.57%
	12.9	194	12.8	384	32.78%		25.4	666	20.6	384	46.57%
	12.8	208	12.8	384	32.78%		25.5	243	20.5	391	45.74%
	12.8	359	12.8	384	32.78%		25.8	323	20.5	391	45.74%
	12.3	362	12.8	384	32.78%		25.8	346	20.5	391	45.74%
	12.5	363	12.8	384	32.78%		25.6	465	20.5	391	45.74%
Feb 96	12.3	367	12.8	384	32.78%		25.3	479	20.5	391	45.74%
	12.2	387	12.8	384	32.78%	Aug 95	26.2	482	20.5	391	45.74%
	12	388	12.8	384	32.78%		26.2	10	20.4	397	43.96%
	12	389	12.8	384	32.78%		26.3	134	20.4	397	43.96%
	12	391	12.8	384	32.78%		25.5	236	20.4	397	43.96%
	12.4	392	12.8	384	32.78%		24.8	252	20.4	397	43.96%
	12.8	401	12.8	384	32.78%		23.4	319	20.4	397	43.96%
	12.8	402	12.8	384	32.78%		23.5	462	20.4	397	43.96%
	12.8	403	12.8	384	32.78%		23.7	466	20.4	397	43.96%
	12.2	424	12.8	384	32.78%		24.2	469	20.4	397	43.96%
	10.4	441	12.8	384	32.78%		24.4	480	20.4	397	43.96%
	11.3	442	12.8	384	32.78%		24.7	481	20.4	397	43.96%
	10	565	12.8	384	32.78%		24.7	554	20.4	397	43.96%
	11.8	64	12.7	408	31.79%		25.3	555	20.4	397	43.96%
	9.9	232	12.7	408	31.79%		26.2	671	20.4	397	43.96%
	10.6	377	12.7	408	31.79%		26.3	135	20.3	410	43.27%
	11.8	383	12.7	408	31.79%		26.3	234	20.3	410	43.27%
	12	386	12.7	408	31.79%		25.4	320	20.3	410	43.27%
	12.4	587	12.7	408	31.79%		26.1	464	20.3	410	43.27%
	14.5	95	12.6	414	30.46%		25.1	673	20.3	410	43.27%
	14.3	135	12.6	414	30.46%		24.8	19	20.2	415	42.45%
	14.5	358	12.6	414	30.46%		24.7	235	20.2	415	42.45%
	14.3	361	12.6	414	30.46%		24.8	324	20.2	415	42.45%
	14.6	374	12.6	414	30.46%		23.3	468	20.2	415	42.45%
	14.8	380	12.6	414	30.46%		23.4	552	20.2	415	42.45%

90th Percentile Determination

	14.6	590	12.6	414	30.46%		23	553	20.2	415	42.45%
	13.9	592	12.6	414	30.46%		24.9	232	20.1	421	42.03%
	13.8	379	12.5	422	29.97%		24.9	316	20.1	421	42.03%
	13.8	394	12.5	422	29.97%		24.7	548	20.1	421	42.03%
Mar 96	12.8	429	12.5	422	29.97%		24.7	322	20	424	41.35%
	12.1	67	12.4	425	27.65%		24.5	672	20	424	41.35%
	12.2	101	12.4	425	27.65%		23.6	674	20	424	41.35%
	13.2	108	12.4	425	27.65%	Sep 95	24.2	675	20	424	41.35%
	13.1	109	12.4	425	27.65%		23.2	687	20	424	41.35%
	12.5	115	12.4	425	27.65%		23	486	19.9	429	41.21%
	12.1	118	12.4	425	27.65%		23.6	126	19.8	430	40.93%
	12	127	12.4	425	27.65%		24.9	551	19.8	430	40.93%
	11.8	128	12.4	425	27.65%		24.3	20	19.7	432	39.84%
	12.3	140	12.4	425	27.65%		24.2	57	19.7	432	39.84%
	12.9	341	12.4	425	27.65%		23.6	233	19.7	432	39.84%
	13.1	378	12.4	425	27.65%		21.7	251	19.7	432	39.84%
	13.7	400	12.4	425	27.65%		22.9	542	19.7	432	39.84%
	13	413	12.4	425	27.65%		22.9	549	19.7	432	39.84%
	13	443	12.4	425	27.65%		25	698	19.7	432	39.84%
	13	66	12.3	439	24.67%		25.2	699	19.7	432	39.84%
	13	69	12.3	439	24.67%		25.1	127	19.6	440	38.46%
	12.8	130	12.3	439	24.67%		22.8	318	19.6	440	38.46%
	12.8	131	12.3	439	24.67%		22.6	543	19.6	440	38.46%
	12.4	139	12.3	439	24.67%		21.4	547	19.6	440	38.46%
	13.1	240	12.3	439	24.67%		21.4	676	19.6	440	38.46%
	13.3	241	12.3	439	24.67%		21.6	682	19.6	440	38.46%
	13.6	244	12.3	439	24.67%		21.3	683	19.6	440	38.46%
	13.7	245	12.3	439	24.67%		21.1	684	19.6	440	38.46%
	13.7	356	12.3	439	24.67%		21.2	692	19.6	440	38.46%
	13	369	12.3	439	24.67%		20.6	697	19.6	440	38.46%
	13	370	12.3	439	24.67%		21.3	125	19.5	450	38.19%
	13.3	371	12.3	439	24.67%		21.4	321	19.5	450	38.19%
	13.4	375	12.3	439	24.67%		21.2	42	19.4	452	37.23%
	15.3	376	12.3	439	24.67%		21.4	550	19.4	452	37.23%
	15.2	393	12.3	439	24.67%		21.3	681	19.4	452	37.23%
Nov 96	19.2	395	12.3	439	24.67%		21.1	688	19.4	452	37.23%
	19.2	433	12.3	439	24.67%		20.8	689	19.4	452	37.23%
	19.5	107	12.2	457	22.35%	Oct 95	21.2	694	19.4	452	37.23%
	19.2	122	12.2	457	22.35%		21.4	695	19.4	452	37.23%
	19.3	126	12.2	457	22.35%		21.4	18	19.3	459	35.99%
	19.3	134	12.2	457	22.35%		21.7	28	19.3	459	35.99%
	19.6	145	12.2	457	22.35%		20.7	121	19.3	459	35.99%
	19.7	357	12.2	457	22.35%		20.4	124	19.3	459	35.99%
	19.5	360	12.2	457	22.35%		20.7	242	19.3	459	35.99%
	18	368	12.2	457	22.35%		20.3	244	19.3	459	35.99%
	17.2	396	12.2	457	22.35%		20.5	544	19.3	459	35.99%
	17.2	404	12.2	457	22.35%		20.4	678	19.3	459	35.99%
	17.2	426	12.2	457	22.35%		20.8	680	19.3	459	35.99%
	17	551	12.2	457	22.35%		20.2	26	19.2	468	35.03%
	16.9	552	12.2	457	22.35%		20.4	245	19.2	468	35.03%
	15.8	591	12.2	457	22.35%		18.8	677	19.2	468	35.03%
	16.4	230	12.1	471	20.86%		18.4	690	19.2	468	35.03%
	16.6	231	12.1	471	20.86%		18.2	691	19.2	468	35.03%
	16.8	264	12.1	471	20.86%		18.4	693	19.2	468	35.03%
	16.8	266	12.1	471	20.86%		18.8	696	19.2	468	35.03%
	16.9	267	12.1	471	20.86%		18.4	31	19.1	475	34.34%
	16.9	372	12.1	471	20.86%		18.6	37	19.1	475	34.34%
	17.2	381	12.1	471	20.86%		18	120	19.1	475	34.34%
	17.4	425	12.1	471	20.86%		18.1	132	19.1	475	34.34%
	17.4	430	12.1	471	20.86%		20.5	546	19.1	475	34.34%
	17.7	97	12	480	18.71%		20.4	21	19	480	33.38%
	17.2	119	12	480	18.71%		20.4	27	19	480	33.38%
	16.9	120	12	480	18.71%		20.5	36	19	480	33.38%
	16.7	121	12	480	18.71%		18.9	128	19	480	33.38%
	16.7	263	12	480	18.71%		17.7	532	19	480	33.38%
	16.9	373	12	480	18.71%		18.6	545	19	480	33.38%
	17.2	397	12	480	18.71%		19.9	679	19	480	33.38%
	16.5	398	12	480	18.71%		20.7	58	18.9	487	32.97%
	16.3	399	12	480	18.71%	Apr 96	15.6	273	18.9	487	32.97%
	15.1	412	12	480	18.71%		15.9	483	18.9	487	32.97%
	15	431	12	480	18.71%		16.8	59	18.8	490	32.14%
	14.9	549	12	480	18.71%		17.4	123	18.8	490	32.14%
	14.7	593	12	480	18.71%		17.3	133	18.8	490	32.14%
	14.8	123	11.9	493	17.22%		17.8	470	18.8	490	32.14%
	14.8	221	11.9	493	17.22%		17.6	474	18.8	490	32.14%
	15.8	532	11.9	493	17.22%		17.6	531	18.8	490	32.14%
	14.8	538	11.9	493	17.22%		17.7	40	18.7	496	31.73%
	15.2	548	11.9	493	17.22%		17.9	41	18.7	496	31.73%
	15.2	553	11.9	493	17.22%		17.9	122	18.7	496	31.73%
	15.3	557	11.9	493	17.22%		17.8	52	18.6	499	30.63%
	15.3	558	11.9	493	17.22%		18	114	18.6	499	30.63%
	15.2	564	11.9	493	17.22%		17.9	115	18.6	499	30.63%
	15.2	70	11.8	502	15.23%		18	315	18.6	499	30.63%
	15	74	11.8	502	15.23%		18.2	476	18.6	499	30.63%

90th Percentile Determination

	14.4	125	11.8	502	15.23%
	14	132	11.8	502	15.23%
	14	242	11.8	502	15.23%
	14.7	243	11.8	502	15.23%
	14.4	285	11.8	502	15.23%
	13.9	408	11.8	502	15.23%
	13.9	411	11.8	502	15.23%
	14.3	432	11.8	502	15.23%
	14.4	562	11.8	502	15.23%
	14.7	563	11.8	502	15.23%
	14.8	105	11.7	514	12.75%
	14.9	106	11.7	514	12.75%
Jan 97	14.3	220	11.7	514	12.75%
	14.3	253	11.7	514	12.75%
	14.8	262	11.7	514	12.75%
	15.1	274	11.7	514	12.75%
	15.1	276	11.7	514	12.75%
	15	533	11.7	514	12.75%
	14.9	536	11.7	514	12.75%
	14.7	537	11.7	514	12.75%
	14.2	540	11.7	514	12.75%
	13.9	541	11.7	514	12.75%
	13.7	547	11.7	514	12.75%
	13.5	550	11.7	514	12.75%
	13.5	561	11.7	514	12.75%
	13.6	102	11.6	529	11.59%
	13.7	104	11.6	529	11.59%
	13.7	133	11.6	529	11.59%
	11.9	246	11.6	529	11.59%
	11.7	247	11.6	529	11.59%
	11.3	543	11.6	529	11.59%
	11.1	544	11.6	529	11.59%
	11.7	100	11.5	536	10.93%
	11.7	219	11.5	536	10.93%
	11.9	269	11.5	536	10.93%
	11.5	539	11.5	536	10.93%
	11.7	71	11.4	540	9.11%
	11.7	72	11.4	540	9.11%
	11.4	75	11.4	540	9.11%
	11.6	215	11.4	540	9.11%
	11.6	222	11.4	540	9.11%
	11.3	239	11.4	540	9.11%
	11.3	542	11.4	540	9.11%
Feb 97	11.7	554	11.4	540	9.11%
	11.9	555	11.4	540	9.11%
	12	559	11.4	540	9.11%
	11.7	560	11.4	540	9.11%
	12.2	103	11.3	551	7.12%
	12.2	248	11.3	551	7.12%
	11.9	261	11.3	551	7.12%
	11.4	268	11.3	551	7.12%
	11.4	272	11.3	551	7.12%
	11.3	273	11.3	551	7.12%
	11.9	275	11.3	551	7.12%
	11.9	406	11.3	551	7.12%
	11.4	534	11.3	551	7.12%
	11.4	545	11.3	551	7.12%
	11.7	546	11.3	551	7.12%
	11.8	556	11.3	551	7.12%
	11.8	216	11.2	563	6.29%
	11.9	259	11.2	563	6.29%
	12.8	260	11.2	563	6.29%
	13.4	270	11.2	563	6.29%
	13.5	271	11.2	563	6.29%
	13.4	217	11.1	568	5.79%
	13.7	223	11.1	568	5.79%
	13.8	535	11.1	568	5.79%
	13.9	218	11	571	5.13%
	13.9	238	11	571	5.13%
	13.9	254	11	571	5.13%
	14.4	255	11	571	5.13%
Mar 97	13.9	84	10.9	575	3.97%
	14.6	85	10.9	575	3.97%
	13.8	86	10.9	575	3.97%
	13.2	92	10.9	575	3.97%
	13.5	256	10.9	575	3.97%
	13.3	257	10.9	575	3.97%
	13	258	10.9	575	3.97%
	13.3	73	10.8	582	2.81%
	13	76	10.8	582	2.81%
	13.4	80	10.8	582	2.81%
	13.4	81	10.8	582	2.81%
	13.3	83	10.8	582	2.81%
	12.7	87	10.8	582	2.81%
	18.3	485	18.6	499	30.63%
	18.3	506	18.6	499	30.63%
	18.6	507	18.6	499	30.63%
	18.6	36	18.5	507	30.08%
	18.4	51	18.5	507	30.08%
	18	258	18.5	507	30.08%
	18	313	18.5	507	30.08%
	18.3	119	18.4	511	29.26%
	18.3	257	18.4	511	29.26%
	17.6	471	18.4	511	29.26%
	17.5	473	18.4	511	29.26%
	17.5	475	18.4	511	29.26%
	17.3	508	18.4	511	29.26%
	16.8	131	18.3	517	28.30%
May 96	16.8	312	18.3	517	28.30%
	16.3	314	18.3	517	28.30%
	17.1	504	18.3	517	28.30%
	17.5	505	18.3	517	28.30%
	16.9	511	18.3	517	28.30%
	17	512	18.3	517	28.30%
	16.9	33	18.2	524	27.34%
	16.9	35	18.2	524	27.34%
	17.2	44	18.2	524	27.34%
	16.8	118	18.2	524	27.34%
	16.9	267	18.2	524	27.34%
	16.6	472	18.2	524	27.34%
	16.7	503	18.2	524	27.34%
	18.8	30	18.1	531	26.51%
	19	45	18.1	531	26.51%
	20.6	130	18.1	531	26.51%
	20.7	247	18.1	531	26.51%
	21.2	293	18.1	531	26.51%
	21.4	478	18.1	531	26.51%
	22.2	32	18	537	25.00%
	22	43	18	537	25.00%
	22.1	50	18	537	25.00%
	22.1	54	18	537	25.00%
	21.6	129	18	537	25.00%
	19.7	246	18	537	25.00%
	19.6	477	18	537	25.00%
	19.3	500	18	537	25.00%
	19	502	18	537	25.00%
	19.1	509	18	537	25.00%
	19.6	510	18	537	25.00%
	20.1	255	17.9	548	24.04%
June 96	19.7	256	17.9	548	24.04%
	19.4	259	17.9	548	24.04%
	19.8	317	17.9	548	24.04%
	20.2	497	17.9	548	24.04%
	20.2	498	17.9	548	24.04%
	20.4	501	17.9	548	24.04%
	20.4	253	17.8	555	23.49%
	20.7	264	17.8	555	23.49%
	20.6	493	17.8	555	23.49%
	20.8	499	17.8	555	23.49%
	20.8	39	17.7	559	22.66%
	20.9	55	17.7	559	22.66%
	21.9	105	17.7	559	22.66%
	21.8	266	17.7	559	22.66%
	21.9	484	17.7	559	22.66%
	21.9	496	17.7	559	22.66%
	22	102	17.6	565	21.70%
	22.2	104	17.6	565	21.70%
	22.4	112	17.6	565	21.70%
	22.4	248	17.6	565	21.70%
	22.5	494	17.6	565	21.70%
	22.1	495	17.6	565	21.70%
	22	513	17.6	565	21.70%
	22	101	17.5	572	21.02%
	22.3	308	17.5	572	21.02%
	22.3	514	17.5	572	21.02%
	22.6	515	17.5	572	21.02%
	22.7	521	17.5	572	21.02%
	23.9	34	17.4	577	20.47%
	23.9	113	17.4	577	20.47%
July 96	23.6	301	17.4	577	20.47%
	22.4	491	17.4	577	20.47%
	22.7	99	17.3	581	19.51%
	22.9	103	17.3	581	19.51%
	23.4	106	17.3	581	19.51%
	23.6	263	17.3	581	19.51%
	23.6	292	17.3	581	19.51%
	23.7	492	17.3	581	19.51%
	23.3	518	17.3	581	19.51%

90th Percentile Determination

13	93	10.8	582	2.81%
13	91	10.6	589	2.32%
12.6	252	10.6	589	2.32%
12.2	410	10.6	589	2.32%
12.6	82	10.5	592	2.15%
12	77	10.4	593	1.16%
13.4	88	10.4	593	1.16%
13.1	89	10.4	593	1.16%
13.6	90	10.4	593	1.16%
13.4	280	10.4	593	1.16%
13	405	10.4	593	1.16%
13.2	250	10.3	599	0.83%
13.2	251	10.3	599	0.83%
13.6	78	10.2	601	0.50%
13.5	249	10.2	601	0.50%
13.8	79	10.1	603	0.33%
13.8	407	10	604	0.17%
13.2	409	9.9	605	0.00%

	22.1	29	17.2	588	18.68%
	22.7	56	17.2	588	18.68%
	22.7	250	17.2	588	18.68%
	22.6	265	17.2	588	18.68%
	23.8	300	17.2	588	18.68%
	23.8	526	17.2	588	18.68%
	23.9	100	17.1	594	17.58%
	23.6	116	17.1	594	17.58%
	23.1	254	17.1	594	17.58%
	23.1	262	17.1	594	17.58%
	23.6	272	17.1	594	17.58%
	23.8	294	17.1	594	17.58%
	23.9	307	17.1	594	17.58%
	24	520	17.1	594	17.58%
	24.3	249	17	602	17.17%
	24.1	299	17	602	17.17%
	24.1	523	17	602	17.17%
	23.7	107	16.9	605	16.21%
	23.8	111	16.9	605	16.21%
	23.8	308	16.9	605	16.21%
	23.9	522	16.9	605	16.21%
	24	524	16.9	605	16.21%
Aug 96	24	525	16.9	605	16.21%
	24.2	528	16.9	605	16.21%
	24.3	271	16.8	612	15.52%
	24.3	490	16.8	612	15.52%
	24.3	517	16.8	612	15.52%
	24.4	518	16.8	612	15.52%
	24.3	527	16.8	612	15.52%
	24.2	266	16.7	617	15.25%
	24.3	530	16.7	617	15.25%
	24.2	117	16.6	619	14.70%
	23.8	310	16.6	619	14.70%
	23.4	311	16.6	619	14.70%
	23.4	529	16.6	619	14.70%
	23.6	269	16.5	623	14.56%
	23.7	108	16.4	624	14.29%
	23.5	109	16.4	624	14.29%
	23.8	110	16.3	626	13.46%
	23.5	260	16.3	626	13.46%
	23.4	261	16.3	626	13.46%
	23.9	298	16.3	626	13.46%
	23.9	309	16.3	626	13.46%
	24.2	519	16.3	626	13.46%
	23.8	79	16.2	632	13.19%
	23.6	86	16.2	632	13.19%
	23.7	80	16.1	634	13.05%
	23.8	93	16	635	12.64%
	23.4	95	16	635	12.64%
	23.2	270	16	635	12.64%
	23.8	489	15.9	638	12.50%
	23.7	89	15.8	639	12.09%
	23.6	291	15.8	639	12.09%
Sept 96	23.2	729	15.8	639	12.09%
	23.1	84	15.7	642	11.40%
	22.8	85	15.7	642	11.40%
	22.7	94	15.7	642	11.40%
	22.6	303	15.7	642	11.40%
	22.6	728	15.7	642	11.40%
	22.7	488	15.6	647	10.99%
	22.6	725	15.6	647	10.99%
	22.8	727	15.6	647	10.99%
	22.8	289	15.5	650	10.71%
	22.8	297	15.5	650	10.71%
	22.6	290	15.4	652	10.30%
	22.3	295	15.4	652	10.30%
	22.2	304	15.4	652	10.30%
	22.2	78	15.3	655	9.75%
	22.1	90	15.3	655	9.75%
	22	98	15.3	655	9.75%
	22.1	726	15.3	655	9.75%
	22	81	15.2	659	8.79%
	21.5	83	15.2	659	8.79%
	21.8	87	15.2	659	8.79%
	21.2	88	15.2	659	8.79%
	21.3	96	15.2	659	8.79%
	21.2	302	15.2	659	8.79%
	21.2	305	15.2	659	8.79%
	21	91	15.1	666	8.24%
	20.7	92	15.1	666	8.24%
	20.9	296	15.1	666	8.24%
	20.7	724	15.1	666	8.24%
	20.9	77	14.9	670	7.97%
Oct 96	20.4	97	14.9	670	7.97%

90th Percentile Determination

	20	82	14.8	672	7.55%
	20.3	720	14.8	672	7.55%
	20	723	14.8	672	7.55%
	20	73	14.7	675	7.01%
	19.6	74	14.7	675	7.01%
	19.2	278	14.7	675	7.01%
	19.3	280	14.7	675	7.01%
	19	72	14.6	679	6.59%
	19.3	721	14.6	679	6.59%
	19.4	722	14.6	679	6.59%
	19.6	282	14.5	682	6.32%
	19.6	718	14.5	682	6.32%
	19.6	71	14.4	684	6.18%
	20.6	70	14.3	685	5.77%
	20.6	75	14.3	685	5.77%
	20	279	14.3	685	5.77%
	19.4	284	14.2	688	5.49%
	19.4	285	14.2	688	5.49%
	19.2	283	14.1	690	5.36%
	19.2	76	13.9	691	5.08%
	19.6	708	13.9	691	5.08%
	19.2	281	13.8	693	4.40%
	19.4	288	13.8	693	4.40%
	19.4	711	13.8	693	4.40%
	19.2	713	13.8	693	4.40%
	19.6	717	13.8	693	4.40%
	19.7	274	13.7	698	3.57%
	19.7	275	13.7	698	3.57%
Apr 97	13	706	13.7	698	3.57%
	13	714	13.7	698	3.57%
	13.3	715	13.7	698	3.57%
	13.3	716	13.7	698	3.57%
	13.6	60	13.6	704	2.75%
	13.6	63	13.6	704	2.75%
	13.7	69	13.6	704	2.75%
	13.4	704	13.6	704	2.75%
	13.9	705	13.6	704	2.75%
	12.8	710	13.6	704	2.75%
	13.6	62	13.5	710	2.61%
	13.8	64	13.4	711	2.20%
	13	65	13.4	711	2.20%
	13.8	707	13.4	711	2.20%
	13.7	702	13.3	714	1.92%
	13.7	703	13.3	714	1.92%
	13.7	67	13.2	716	1.79%
	13.8	700	13	717	1.37%
	14.5	701	13	717	1.37%
	12.8	712	13	717	1.37%
	14.8	61	12.9	720	1.10%
	14.6	68	12.9	720	1.10%
	14.6	66	12.8	722	0.41%
	14.8	276	12.8	722	0.41%
	15.1	277	12.8	722	0.41%
	15.6	709	12.8	722	0.41%
	15.3	719	12.8	722	0.41%
	15.6	286	12.6	727	0.27%
	15.7	287	12.5	728	0.14%
	15.8	53	12.4	729	0.00%

Harborview pH

Nov - March

	N-M pH	Point	Sample	Rank	Percent
Nov 94	7.1	235	8.3	1	100.00%
	7	236	8.1	2	99.56%
	7.1	284	8.1	2	99.56%
	7.1	45	8	4	98.45%
	7.1	290	8	4	98.45%
	7.1	355	8	4	98.45%
	7.1	357	8	4	98.45%
	7.6	361	8	4	98.45%
	7.5	52	7.9	9	96.03%
	7.2	53	7.9	9	96.03%
	7.2	165	7.9	9	96.03%
	7.4	353	7.9	9	96.03%
	7.4	354	7.9	9	96.03%
	7.6	356	7.9	9	96.03%
	7.5	358	7.9	9	96.03%
	7	359	7.9	9	96.03%
	7	360	7.9	9	96.03%
	7	372	7.9	9	96.03%
	7	435	7.9	9	96.03%
	7.5	48	7.8	20	86.53%
	7.5	54	7.8	20	86.53%
	7.2	55	7.8	20	86.53%
	7.6	56	7.8	20	86.53%
	7.3	57	7.8	20	86.53%
	7.4	58	7.8	20	86.53%
	7.3	59	7.8	20	86.53%
	7.3	74	7.8	20	86.53%
	7.2	75	7.8	20	86.53%
	7.4	76	7.8	20	86.53%
	7.4	78	7.8	20	86.53%
Dec 94	7.4	87	7.8	20	86.53%
	7.3	164	7.8	20	86.53%
	7.3	166	7.8	20	86.53%
	7.3	168	7.8	20	86.53%
	7	172	7.8	20	86.53%
	7.6	178	7.8	20	86.53%
	7.6	189	7.8	20	86.53%
	7.3	237	7.8	20	86.53%
	7.7	285	7.8	20	86.53%
	7.7	291	7.8	20	86.53%
	7.7	304	7.8	20	86.53%
	7.6	305	7.8	20	86.53%
	7.6	309	7.8	20	86.53%
	7.7	310	7.8	20	86.53%
	8	325	7.8	20	86.53%
	7.7	329	7.8	20	86.53%
	7.7	331	7.8	20	86.53%
	7.8	338	7.8	20	86.53%
	7.7	362	7.8	20	86.53%
	7.3	364	7.8	20	86.53%
	7.5	368	7.8	20	86.53%
	7.9	367	7.8	20	86.53%
	7.9	368	7.8	20	86.53%
	7.8	370	7.8	20	86.53%
	7.8	371	7.8	20	86.53%
	7.8	378	7.8	20	86.53%
	7.8	397	7.8	20	86.53%
	7.8	402	7.8	20	86.53%
	7.8	415	7.8	20	86.53%
	7.6	419	7.8	20	86.53%
	7.6	420	7.8	20	86.53%
Jan 95	7.6	445	7.8	20	86.53%
	7.6	39	7.7	63	73.73%
	7.5	40	7.7	63	73.73%
	7.5	41	7.7	63	73.73%
	7.5	44	7.7	63	73.73%
	7.5	46	7.7	63	73.73%
	7.5	47	7.7	63	73.73%
	7.5	49	7.7	63	73.73%
	7.5	73	7.7	63	73.73%
	7.4	79	7.7	63	73.73%
	7.4	167	7.7	63	73.73%
	7.7	169	7.7	63	73.73%
	7.8	170	7.7	63	73.73%
	7.8	173	7.7	63	73.73%
	7.8	175	7.7	63	73.73%
	7.6	176	7.7	63	73.73%
	7.8	177	7.7	63	73.73%
	7.7	179	7.7	63	73.73%
	7.6	184	7.7	63	73.73%
	7.5	238	7.7	63	73.73%
	7.6	306	7.7	63	73.73%
	7.6	308	7.7	63	73.73%

April - October

	A-O pH	Point	Sample	Rank	Percent
Apr 95	7.4	60	8.6	1	99.78%
	7.2	318	8.6	1	99.78%
	7.3	33	8.3	3	99.56%
	7.5	27	8.2	4	99.12%
	7.5	317	8.2	4	99.12%
	7.5	323	8.1	6	98.91%
	7.3	26	8	7	97.37%
	7.4	34	8	7	97.37%
	7.5	319	8	7	97.37%
	7.3	324	8	7	97.37%
	7.1	356	8	7	97.37%
	7.3	364	8	7	97.37%
	7.3	365	8	7	97.37%
	7.4	344	7.9	14	96.50%
	7.5	362	7.9	14	96.50%
	7.5	363	7.9	14	96.50%
	7.6	366	7.9	14	96.50%
	7.4	31	7.8	18	87.31%
	7.3	47	7.8	18	87.31%
	7.6	62	7.8	18	87.31%
	7.2	245	7.8	18	87.31%
	7.5	246	7.8	18	87.31%
	7.7	247	7.8	18	87.31%
	7.7	248	7.8	18	87.31%
	7.3	249	7.8	18	87.31%
	8	250	7.8	18	87.31%
	8.2	282	7.8	18	87.31%
	7.5	294	7.8	18	87.31%
	7.7	304	7.8	18	87.31%
	7.6	316	7.8	18	87.31%
May 95	7.8	320	7.8	18	87.31%
	7.8	321	7.8	18	87.31%
	8.3	326	7.8	18	87.31%
	8	327	7.8	18	87.31%
	7.4	329	7.8	18	87.31%
	7.6	330	7.8	18	87.31%
	7.6	331	7.8	18	87.31%
	7.2	333	7.8	18	87.31%
	7.2	335	7.8	18	87.31%
	7.2	340	7.8	18	87.31%
	7.2	341	7.8	18	87.31%
	7.3	346	7.8	18	87.31%
	7.4	347	7.8	18	87.31%
	7.3	352	7.8	18	87.31%
	7.1	353	7.8	18	87.31%
	7.1	355	7.8	18	87.31%
	7.8	359	7.8	18	87.31%
	7.3	360	7.8	18	87.31%
	7	361	7.8	18	87.31%
	7.1	402	7.8	18	87.31%
	7.1	404	7.8	18	87.31%
	7.3	409	7.8	18	87.31%
	7.4	412	7.8	18	87.31%
	7.2	413	7.8	18	87.31%
	7.2	424	7.8	18	87.31%
	7.5	441	7.8	18	87.31%
	7.5	447	7.8	18	87.31%
	7.4	448	7.8	18	87.31%
	7.2	449	7.8	18	87.31%
	8.6	23	7.7	60	75.05%
	7.2	24	7.7	60	75.05%
June 95	7.8	29	7.7	60	75.05%
	7	277	7.7	60	75.05%
	7.2	281	7.7	60	75.05%
	7	284	7.7	60	75.05%
	7.1	285	7.7	60	75.05%
	7.3	287	7.7	60	75.05%
	7.1	289	7.7	60	75.05%
	7.2	291	7.7	60	75.05%
	7.4	293	7.7	60	75.05%
	7.3	295	7.7	60	75.05%
	7.3	297	7.7	60	75.05%
	7	298	7.7	60	75.05%
	7.1	301	7.7	60	75.05%
	7.3	303	7.7	60	75.05%
	7.3	311	7.7	60	75.05%
	7	313	7.7	60	75.05%
	7.1	314	7.7	60	75.05%
	7.2	315	7.7	60	75.05%
	7.2	322	7.7	60	75.05%
	7.4	325	7.7	60	75.05%
	7.5	332	7.7	60	75.05%
	7.4	336	7.7	60	75.05%

90% Value
454 Positions
x .90 = 408.6
= 409
positions up
or 46 positions
down = 7.8 s.u.

90% Value
458 Positions
x .90 = 412.2 = 412
positions up or
47 positions down
= 7.8 s.u.

	7.4	311	7.7	63	73.73%		6.9	337	7.7	60	75.05%
	7.2	315	7.7	63	73.73%		7	339	7.7	60	75.05%
	7.2	318	7.7	63	73.73%		7.3	343	7.7	60	75.05%
	7.8	319	7.7	63	73.73%		7.3	345	7.7	60	75.05%
	7.6	320	7.7	63	73.73%		7.2	348	7.7	60	75.05%
	7.6	322	7.7	63	73.73%		7.1	351	7.7	60	75.05%
	7.5	324	7.7	63	73.73%		7.1	354	7.7	60	75.05%
	7.4	326	7.7	63	73.73%		7.1	357	7.7	60	75.05%
	7.4	328	7.7	63	73.73%	July 95	7.1	388	7.7	60	75.05%
Feb 95	7.4	330	7.7	63	73.73%		7.3	399	7.7	60	75.05%
	7.4	332	7.7	63	73.73%		7.2	401	7.7	60	75.05%
	7.5	337	7.7	63	73.73%		7.1	403	7.7	60	75.05%
	7.6	342	7.7	63	73.73%		7.1	407	7.7	60	75.05%
	7.8	343	7.7	63	73.73%		7.2	408	7.7	60	75.05%
	7.6	349	7.7	63	73.73%		7	410	7.7	60	75.05%
	7.5	351	7.7	63	73.73%		7.2	411	7.7	60	75.05%
	7.5	363	7.7	63	73.73%		7.2	414	7.7	60	75.05%
	7.4	365	7.7	63	73.73%		7.1	415	7.7	60	75.05%
	7.4	369	7.7	63	73.73%		6.8	420	7.7	60	75.05%
	7.5	373	7.7	63	73.73%		7	422	7.7	60	75.05%
	7.5	374	7.7	63	73.73%		7.1	423	7.7	60	75.05%
	7.4	375	7.7	63	73.73%		7.1	428	7.7	60	75.05%
	7.3	377	7.7	63	73.73%		7.2	431	7.7	60	75.05%
	7.4	378	7.7	63	73.73%		7.2	432	7.7	60	75.05%
	7.3	399	7.7	63	73.73%		7.1	434	7.7	60	75.05%
	7.4	401	7.7	63	73.73%		7	437	7.7	60	75.05%
	7.3	408	7.7	63	73.73%		7.1	438	7.7	60	75.05%
	7.4	413	7.7	63	73.73%		7.1	445	7.7	60	75.05%
	7.3	414	7.7	63	73.73%		6.9	446	7.7	60	75.05%
	7.3	416	7.7	63	73.73%		7	451	7.7	60	75.05%
	7.4	418	7.7	63	73.73%		7.1	457	7.7	60	75.05%
	7.4	433	7.7	63	73.73%		7.1	458	7.7	60	75.05%
	7.4	434	7.7	63	73.73%		7	17	7.6	116	64.55%
	7.4	437	7.7	63	73.73%		6.9	20	7.6	116	64.55%
	7.4	444	7.7	63	73.73%		7	30	7.6	116	64.55%
	7.3	446	7.7	63	73.73%		7	32	7.6	116	64.55%
	7.3	452	7.7	63	73.73%		6.9	36	7.6	116	64.55%
Mar 95	7.2	8	7.6	121	58.94%		7	37	7.6	116	64.55%
	7.3	14	7.6	121	58.94%		7	235	7.6	116	64.55%
	7.4	23	7.6	121	58.94%	Aug 95	7	251	7.6	116	64.55%
	7.4	36	7.6	121	58.94%		6.9	269	7.6	116	64.55%
	7.4	37	7.6	121	58.94%		6.9	276	7.6	116	64.55%
	7.6	42	7.6	121	58.94%		6.9	278	7.6	116	64.55%
	7.3	43	7.6	121	58.94%		7	280	7.6	116	64.55%
	7.4	60	7.6	121	58.94%		6.9	283	7.6	116	64.55%
	7.3	61	7.6	121	58.94%		6.9	286	7.6	116	64.55%
	7.4	62	7.6	121	58.94%		6.8	288	7.6	116	64.55%
	7.4	63	7.6	121	58.94%		6.8	290	7.6	116	64.55%
	7.4	77	7.6	121	58.94%		6.8	292	7.6	116	64.55%
	7.5	80	7.6	121	58.94%		6.9	296	7.6	116	64.55%
	6.9	82	7.6	121	58.94%		6.9	299	7.6	116	64.55%
	7.3	83	7.6	121	58.94%		6.9	302	7.6	116	64.55%
	7.6	88	7.6	121	58.94%		6.9	305	7.6	116	64.55%
	7.5	89	7.6	121	58.94%		7	309	7.6	116	64.55%
	7.5	96	7.6	121	58.94%		6.8	310	7.6	116	64.55%
	7.5	97	7.6	121	58.94%		6.8	312	7.6	116	64.55%
	7.6	98	7.6	121	58.94%		6.8	328	7.6	116	64.55%
	7.4	126	7.6	121	58.94%		6.9	334	7.6	116	64.55%
	7.6	136	7.6	121	58.94%		6.9	338	7.6	116	64.55%
	7.2	140	7.6	121	58.94%		6.9	342	7.6	116	64.55%
	7.4	142	7.6	121	58.94%		6.8	349	7.6	116	64.55%
	7.2	152	7.6	121	58.94%		6.8	350	7.6	116	64.55%
	7.4	171	7.6	121	58.94%		6.9	358	7.6	116	64.55%
	7.4	174	7.6	121	58.94%		6.9	367	7.6	116	64.55%
	7.3	182	7.6	121	58.94%		6.9	400	7.6	116	64.55%
	7.3	183	7.6	121	58.94%		6.9	406	7.6	116	64.55%
	7.3	185	7.6	121	58.94%		6.8	421	7.6	116	64.55%
	7.4	252	7.6	121	58.94%		6.8	425	7.6	116	64.55%
Nov 95	7.6	253	7.6	121	58.94%		7	426	7.6	116	64.55%
	7.5	288	7.6	121	58.94%		7	427	7.6	116	64.55%
	7.1	307	7.6	121	58.94%	Sep 95	6.9	430	7.6	116	64.55%
	7.1	314	7.6	121	58.94%		6.9	433	7.6	116	64.55%
	7.2	316	7.6	121	58.94%		7	436	7.6	116	64.55%
	7.3	317	7.6	121	58.94%		6.9	439	7.6	116	64.55%
	6.8	321	7.6	121	58.94%		6.9	440	7.6	116	64.55%
	6.9	323	7.6	121	58.94%		6.9	444	7.6	116	64.55%
	7.1	327	7.6	121	58.94%		6.9	450	7.6	116	64.55%
	7.2	333	7.6	121	58.94%		7.1	453	7.6	116	64.55%
	6.8	334	7.6	121	58.94%		7	455	7.6	116	64.55%
	7.2	335	7.6	121	58.94%		6.8	456	7.6	116	64.55%
	7.8	336	7.6	121	58.94%		7.1	4	7.5	164	57.11%
	7.9	341	7.6	121	58.94%		7	5	7.5	164	57.11%
	7.8	344	7.6	121	58.94%		7	6	7.5	164	57.11%
	7.7	345	7.6	121	58.94%		7.1	9	7.5	164	57.11%

	7.8	348	7.6	121	58.94%		7.1	15	7.5	164	57.11%
	7.7	350	7.6	121	58.94%		7.1	16	7.5	164	57.11%
	7.7	379	7.6	121	58.94%		7.1	22	7.5	164	57.11%
	7.6	396	7.6	121	58.94%		7.1	28	7.5	164	57.11%
	7.6	398	7.6	121	58.94%		7	56	7.5	164	57.11%
	7.7	406	7.6	121	58.94%		7	57	7.5	164	57.11%
	7.6	407	7.6	121	58.94%		7	82	7.5	164	57.11%
	7.7	411	7.6	121	58.94%		7	200	7.5	164	57.11%
	7.7	412	7.6	121	58.94%		7	214	7.5	164	57.11%
	7.7	417	7.6	121	58.94%		7	236	7.5	164	57.11%
	7.8	423	7.6	121	58.94%		6.8	237	7.5	164	57.11%
	7.7	431	7.6	121	58.94%		6.8	252	7.5	164	57.11%
	6.9	432	7.6	121	58.94%		6.8	255	7.5	164	57.11%
	7.5	436	7.6	121	58.94%		6.9	256	7.5	164	57.11%
Dec 95	7.6	440	7.6	121	58.94%		7	258	7.5	164	57.11%
	7.6	441	7.6	121	58.94%		6.9	267	7.5	164	57.11%
	7.7	448	7.6	121	58.94%	Oct 95	6.9	268	7.5	164	57.11%
	7.6	450	7.6	121	58.94%		7	274	7.5	164	57.11%
	7.5	451	7.6	121	58.94%		7	279	7.5	164	57.11%
	7	453	7.6	121	58.94%		6.8	300	7.5	164	57.11%
	7.1	9	7.5	188	48.34%		6.8	405	7.5	164	57.11%
	7.8	15	7.5	188	48.34%		6.8	416	7.5	164	57.11%
	7.2	20	7.5	188	48.34%		6.9	417	7.5	164	57.11%
	7.3	21	7.5	188	48.34%		6.8	418	7.5	164	57.11%
	7	51	7.5	188	48.34%		6.9	419	7.5	164	57.11%
	7	64	7.5	188	48.34%		6.5	429	7.5	164	57.11%
	7.1	65	7.5	188	48.34%		6.8	435	7.5	164	57.11%
	7.3	66	7.5	188	48.34%		6.8	442	7.5	164	57.11%
	7.3	67	7.5	188	48.34%		6.8	443	7.5	164	57.11%
	7.3	68	7.5	188	48.34%		6.8	454	7.5	164	57.11%
	7.2	69	7.5	188	48.34%		6.8	1	7.4	198	48.80%
	7	70	7.5	188	48.34%		6.8	8	7.4	198	48.80%
	7.2	81	7.5	188	48.34%		7.5	14	7.4	198	48.80%
	7.2	90	7.5	188	48.34%		7.2	18	7.4	198	48.80%
	7.3	95	7.5	188	48.34%		7.3	35	7.4	198	48.80%
	7.3	99	7.5	188	48.34%		7.2	43	7.4	198	48.80%
	7.3	100	7.5	188	48.34%		7.2	53	7.4	198	48.80%
	7.3	103	7.5	188	48.34%		7.2	58	7.4	198	48.80%
	7.3	104	7.5	188	48.34%		7.1	70	7.4	198	48.80%
	7	133	7.5	188	48.34%		7.1	81	7.4	198	48.80%
	6.8	137	7.5	188	48.34%		6.9	83	7.4	198	48.80%
	7.2	138	7.5	188	48.34%		6.9	217	7.4	198	48.80%
	7.2	139	7.5	188	48.34%		6.9	218	7.4	198	48.80%
	7.2	153	7.5	188	48.34%		6.9	222	7.4	198	48.80%
	7.2	181	7.5	188	48.34%		6.9	226	7.4	198	48.80%
Jan 96	7	186	7.5	188	48.34%		7.1	227	7.4	198	48.80%
	7	254	7.5	188	48.34%		7.5	229	7.4	198	48.80%
	7.2	255	7.5	188	48.34%	Apr 96	7.1	231	7.4	198	48.80%
	7.3	265	7.5	188	48.34%		7.3	233	7.4	198	48.80%
	7.2	312	7.5	188	48.34%		7.4	234	7.4	198	48.80%
	7.3	313	7.5	188	48.34%		7.4	238	7.4	198	48.80%
	7.3	339	7.5	188	48.34%		7	239	7.4	198	48.80%
	7.1	340	7.5	188	48.34%		7.3	241	7.4	198	48.80%
	7.2	346	7.5	188	48.34%		7.3	243	7.4	198	48.80%
	7	347	7.5	188	48.34%		7.4	244	7.4	198	48.80%
	6.9	352	7.5	188	48.34%		7.3	253	7.4	198	48.80%
	6.9	380	7.5	188	48.34%		7.2	254	7.4	198	48.80%
	7	394	7.5	188	48.34%		7.3	257	7.4	198	48.80%
	7	395	7.5	188	48.34%		7.4	259	7.4	198	48.80%
	7	400	7.5	188	48.34%		7.4	261	7.4	198	48.80%
	7	409	7.5	188	48.34%		7.3	262	7.4	198	48.80%
	7.2	410	7.5	188	48.34%		7.4	263	7.4	198	48.80%
	7.2	421	7.5	188	48.34%		7.3	265	7.4	198	48.80%
	7.2	422	7.5	188	48.34%		7.4	266	7.4	198	48.80%
	7.4	424	7.5	188	48.34%		7.3	270	7.4	198	48.80%
	7.3	439	7.5	188	48.34%		7.4	273	7.4	198	48.80%
	7.4	442	7.5	188	48.34%		7.4	275	7.4	198	48.80%
	8.3	447	7.5	188	48.34%		7.6	452	7.4	198	48.80%
	8.1	12	7.4	236	32.89%		7.5	3	7.3	236	40.92%
	7.8	13	7.4	236	32.89%		7.5	7	7.3	236	40.92%
	7.7	25	7.4	236	32.89%		7.4	10	7.3	236	40.92%
	7.3	29	7.4	236	32.89%		7.4	12	7.3	236	40.92%
	7.1	30	7.4	236	32.89%		7.3	13	7.3	236	40.92%
	7.1	31	7.4	236	32.89%		7.4	19	7.3	236	40.92%
	7	71	7.4	236	32.89%		7.2	25	7.3	236	40.92%
	7.2	72	7.4	236	32.89%		7.4	42	7.3	236	40.92%
Feb 96	7.4	84	7.4	236	32.89%		7.4	44	7.3	236	40.92%
	7.2	91	7.4	236	32.89%	May 96	7.8	48	7.3	236	40.92%
	7.4	92	7.4	236	32.89%		7.8	52	7.3	236	40.92%
	7.3	93	7.4	236	32.89%		7.8	67	7.3	236	40.92%
	7.3	94	7.4	236	32.89%		7.8	71	7.3	236	40.92%
	7.4	101	7.4	236	32.89%		7.8	72	7.3	236	40.92%
	7.3	102	7.4	236	32.89%		7.8	75	7.3	236	40.92%
	7.3	105	7.4	236	32.89%		7.6	76	7.3	236	40.92%

	7.8	107	7.4	236	32.89%		7.5	86	7.3	236	40.92%
	7.8	109	7.4	236	32.89%		7.4	87	7.3	236	40.92%
	7.5	111	7.4	236	32.89%		7.4	93	7.3	236	40.92%
	7.5	114	7.4	236	32.89%		7.5	202	7.3	236	40.92%
	7.3	115	7.4	236	32.89%		7.5	216	7.3	236	40.92%
	7.3	116	7.4	236	32.89%		7.4	220	7.3	236	40.92%
	7.4	117	7.4	236	32.89%		7.5	221	7.3	236	40.92%
	7.3	118	7.4	236	32.89%		7.4	223	7.3	236	40.92%
	7.4	123	7.4	236	32.89%		7.3	225	7.3	236	40.92%
	7.4	124	7.4	236	32.89%		7.4	228	7.3	236	40.92%
	7.3	125	7.4	236	32.89%		7.4	230	7.3	236	40.92%
	7.3	128	7.4	236	32.89%		7.4	232	7.3	236	40.92%
	7.4	130	7.4	236	32.89%		7.2	240	7.3	236	40.92%
	7.5	131	7.4	236	32.89%		7.4	260	7.3	236	40.92%
	7.4	132	7.4	236	32.89%		7.4	272	7.3	236	40.92%
	7.1	141	7.4	236	32.89%		7.5	368	7.3	236	40.92%
	7	144	7.4	236	32.89%		7.5	390	7.3	236	40.92%
	6.9	146	7.4	236	32.89%		7.6	391	7.3	236	40.92%
	7.1	147	7.4	236	32.89%		7.4	394	7.3	236	40.92%
	7.3	151	7.4	236	32.89%		7.2	397	7.3	236	40.92%
	7.3	232	7.4	236	32.89%		7.3	2	7.2	272	32.82%
Mar 96	7.4	234	7.4	236	32.89%		7.4	21	7.2	272	32.82%
	7.4	244	7.4	236	32.89%		7.5	38	7.2	272	32.82%
	7.3	246	7.4	236	32.89%		7.4	39	7.2	272	32.82%
	7.4	249	7.4	236	32.89%	June 96	7.6	40	7.2	272	32.82%
	7.3	258	7.4	236	32.89%		7.7	41	7.2	272	32.82%
	7.4	260	7.4	236	32.89%		7.6	54	7.2	272	32.82%
	7.2	261	7.4	236	32.89%		7.5	55	7.2	272	32.82%
	7.1	264	7.4	236	32.89%		7.6	59	7.2	272	32.82%
	7.1	266	7.4	236	32.89%		7.7	61	7.2	272	32.82%
	7.1	273	7.4	236	32.89%		7.8	64	7.2	272	32.82%
	7.2	274	7.4	236	32.89%		7.6	69	7.2	272	32.82%
	8.1	276	7.4	236	32.89%		7.7	79	7.2	272	32.82%
	7.8	278	7.4	236	32.89%		7.7	80	7.2	272	32.82%
	7.6	287	7.4	236	32.89%		7.6	88	7.2	272	32.82%
	7.4	292	7.4	236	32.89%		7.7	94	7.2	272	32.82%
	7.3	293	7.4	236	32.89%		7.6	97	7.2	272	32.82%
	7.2	294	7.4	236	32.89%		7.7	99	7.2	272	32.82%
	8	295	7.4	236	32.89%		7.6	100	7.2	272	32.82%
	7.8	296	7.4	236	32.89%		7.7	106	7.2	272	32.82%
	7.4	298	7.4	236	32.89%		7.6	107	7.2	272	32.82%
	7.4	303	7.4	236	32.89%		7.7	201	7.2	272	32.82%
	7.4	392	7.4	236	32.89%		7.8	203	7.2	272	32.82%
	7.4	393	7.4	236	32.89%		7.7	204	7.2	272	32.82%
	7.4	403	7.4	236	32.89%		7.6	205	7.2	272	32.82%
	7.3	405	7.4	236	32.89%		7.7	224	7.2	272	32.82%
	7.4	425	7.4	236	32.89%		7.7	242	7.2	272	32.82%
	7.3	426	7.4	236	32.89%		7.6	264	7.2	272	32.82%
	7.2	429	7.4	236	32.89%		7.5	271	7.2	272	32.82%
	7.2	430	7.4	236	32.89%		7.7	308	7.2	272	32.82%
	7.2	438	7.4	236	32.89%		7.6	369	7.2	272	32.82%
	7.4	443	7.4	236	32.89%		7.7	377	7.2	272	32.82%
Nov 96	7.8	449	7.4	236	32.89%		7.8	383	7.2	272	32.82%
	7.8	454	7.4	236	32.89%		7.6	388	7.2	272	32.82%
	7.7	24	7.3	306	19.65%	July 96	6.5	389	7.2	272	32.82%
	7.6	26	7.3	306	19.65%		6.8	393	7.2	272	32.82%
	7.7	27	7.3	306	19.65%		7.2	395	7.2	272	32.82%
	7.8	32	7.3	306	19.65%		7.6	11	7.1	309	22.98%
	7.8	33	7.3	306	19.65%		7.6	45	7.1	309	22.98%
	7.7	34	7.3	306	19.65%		7.7	46	7.1	309	22.98%
	7.5	38	7.3	306	19.65%		7.6	50	7.1	309	22.98%
	7.5	50	7.3	306	19.65%		7.7	51	7.1	309	22.98%
	7.6	106	7.3	306	19.65%		7.7	66	7.1	309	22.98%
	7.7	108	7.3	306	19.65%		7.7	68	7.1	309	22.98%
	7.6	110	7.3	306	19.65%		7.8	74	7.1	309	22.98%
	7.6	112	7.3	306	19.65%		8.2	78	7.1	309	22.98%
	7.7	113	7.3	306	19.65%		8.6	89	7.1	309	22.98%
	7.7	119	7.3	306	19.65%		8	90	7.1	309	22.98%
	7.7	120	7.3	306	19.65%		7.8	91	7.1	309	22.98%
	7.6	122	7.3	306	19.65%		7.8	92	7.1	309	22.98%
	7.7	127	7.3	306	19.65%		7.7	95	7.1	309	22.98%
	7.6	129	7.3	306	19.65%		8.1	96	7.1	309	22.98%
	7.7	135	7.3	306	19.65%		8	101	7.1	309	22.98%
	7.8	148	7.3	306	19.65%		7.7	104	7.1	309	22.98%
	7.7	149	7.3	306	19.65%		7.8	105	7.1	309	22.98%
	7.8	150	7.3	306	19.65%		7.8	108	7.1	309	22.98%
	7.7	157	7.3	306	19.65%		7.6	110	7.1	309	22.98%
	7.8	191	7.3	306	19.65%		7.8	111	7.1	309	22.98%
	7.7	195	7.3	306	19.65%		7.8	114	7.1	309	22.98%
	7.8	196	7.3	306	19.65%		7.8	115	7.1	309	22.98%
	7.7	197	7.3	306	19.65%		7.7	161	7.1	309	22.98%
	7.6	202	7.3	306	19.65%		7.8	164	7.1	309	22.98%
Dec 96	7.6	203	7.3	306	19.65%		7.6	167	7.1	309	22.98%
	7.6	204	7.3	306	19.65%		7.8	168	7.1	309	22.98%

	7.6	205	7.3	306	19.65%		7.7	169	7.1	309	22.98%
	7.7	206	7.3	306	19.65%	Aug 96	7.7	170	7.1	309	22.98%
	7.6	216	7.3	306	19.65%		7.6	171	7.1	309	22.98%
	7.5	218	7.3	306	19.65%		7.7	206	7.1	309	22.98%
	7.5	219	7.3	306	19.65%		7.8	207	7.1	309	22.98%
	7.6	233	7.3	306	19.65%		7.8	213	7.1	309	22.98%
	7.7	239	7.3	306	19.65%		7.6	215	7.1	309	22.98%
	7.7	247	7.3	306	19.65%		7.7	370	7.1	309	22.98%
	7.6	248	7.3	306	19.65%		7.9	371	7.1	309	22.98%
	7.6	250	7.3	306	19.65%		7.7	372	7.1	309	22.98%
	7.5	251	7.3	306	19.65%		7.8	376	7.1	309	22.98%
	7.5	256	7.3	306	19.65%		7.8	378	7.1	309	22.98%
	7.6	257	7.3	306	19.65%		7.7	379	7.1	309	22.98%
	7.7	259	7.3	306	19.65%		7.6	382	7.1	309	22.98%
	7.6	262	7.3	306	19.65%		7.6	384	7.1	309	22.98%
	7.7	263	7.3	306	19.65%		7.7	387	7.1	309	22.98%
	7.5	271	7.3	306	19.65%		7.8	392	7.1	309	22.98%
	7.9	272	7.3	306	19.65%		7.8	396	7.1	309	22.98%
	7.9	275	7.3	306	19.65%		7.7	49	7	354	14.00%
	8	277	7.3	306	19.65%		7.8	63	7	354	14.00%
	7.9	288	7.3	306	19.65%		8	65	7	354	14.00%
	8	297	7.3	306	19.65%		7.7	73	7	354	14.00%
	7.9	299	7.3	306	19.65%		7.6	77	7	354	14.00%
	7.9	381	7.3	306	19.65%		7.8	85	7	354	14.00%
	7.9	382	7.3	306	19.65%		7.8	98	7	354	14.00%
	8	388	7.3	306	19.65%		7.8	103	7	354	14.00%
	7.8	390	7.3	306	19.65%		7.9	109	7	354	14.00%
	7.7	391	7.3	306	19.65%		7.9	113	7	354	14.00%
	7.8	404	7.3	306	19.65%		8	116	7	354	14.00%
Jan 97	7.7	427	7.3	306	19.65%		8	118	7	354	14.00%
	7.8	10	7.2	366	11.48%		7.9	119	7	354	14.00%
	7.8	11	7.2	366	11.48%		7.6	121	7	354	14.00%
	7.8	22	7.2	366	11.48%	Sept 96	7.3	122	7	354	14.00%
	7.7	26	7.2	366	11.48%		7.2	123	7	354	14.00%
	7.8	85	7.2	366	11.48%		7.1	127	7	354	14.00%
	7.8	86	7.2	366	11.48%		7.1	137	7	354	14.00%
	7.9	121	7.2	366	11.48%		7.1	152	7	354	14.00%
	7.7	143	7.2	366	11.48%		7	153	7	354	14.00%
	7.7	145	7.2	366	11.48%		7	156	7	354	14.00%
	7.7	156	7.2	366	11.48%		7	162	7	354	14.00%
	7.8	161	7.2	366	11.48%		7.1	165	7	354	14.00%
	7.7	163	7.2	366	11.48%		7.2	166	7	354	14.00%
	7.7	190	7.2	366	11.48%		7.1	172	7	354	14.00%
	7.8	198	7.2	366	11.48%		7.1	173	7	354	14.00%
	7.5	200	7.2	366	11.48%		7	174	7	354	14.00%
	7.3	201	7.2	366	11.48%		7	175	7	354	14.00%
	7.3	209	7.2	366	11.48%		7.1	176	7	354	14.00%
	7.2	210	7.2	366	11.48%		7.2	177	7	354	14.00%
	7.1	211	7.2	366	11.48%		7.1	182	7	354	14.00%
	7.1	212	7.2	366	11.48%		7	185	7	354	14.00%
	7.1	215	7.2	366	11.48%		7	186	7	354	14.00%
	7.1	217	7.2	366	11.48%		7.1	219	7	354	14.00%
	7.3	221	7.2	366	11.48%		7.2	373	7	354	14.00%
	7.2	229	7.2	366	11.48%		7.2	374	7	354	14.00%
	7.3	230	7.2	366	11.48%		7.3	375	7	354	14.00%
	7.3	231	7.2	366	11.48%		7.3	380	7	354	14.00%
	7.4	243	7.2	366	11.48%		7.1	381	7	354	14.00%
	7.4	245	7.2	366	11.48%		7.2	385	7	354	14.00%
	7.5	279	7.2	366	11.48%		7.3	386	7	354	14.00%
	7.5	283	7.2	366	11.48%		7.2	84	6.9	395	6.13%
Feb 97	7.6	289	7.2	366	11.48%		7.1	112	6.9	395	6.13%
	7.8	300	7.2	366	11.48%		7.3	117	6.9	395	6.13%
	7.6	301	7.2	366	11.48%	Oct 96	7.7	120	6.9	395	6.13%
	7.7	302	7.2	366	11.48%		7.7	124	6.9	395	6.13%
	7.5	383	7.2	366	11.48%		7.6	125	6.9	395	6.13%
	7.7	389	7.2	366	11.48%		7.7	126	6.9	395	6.13%
	7.8	428	7.2	366	11.48%		7.8	128	6.9	395	6.13%
	7.4	1	7.1	403	6.40%		7.7	129	6.9	395	6.13%
	7.3	3	7.1	403	6.40%		7.8	133	6.9	395	6.13%
	7.4	4	7.1	403	6.40%		7.5	134	6.9	395	6.13%
	7.6	5	7.1	403	6.40%		7.6	135	6.9	395	6.13%
	7.6	6	7.1	403	6.40%		7.7	138	6.9	395	6.13%
	7.7	7	7.1	403	6.40%		7.7	141	6.9	395	6.13%
	7.5	154	7.1	403	6.40%		7.8	142	6.9	395	6.13%
	7.5	155	7.1	403	6.40%		7.7	143	6.9	395	6.13%
	7.6	160	7.1	403	6.40%		7.7	146	6.9	395	6.13%
	7.6	168	7.1	403	6.40%		7.8	147	6.9	395	6.13%
	7.7	194	7.1	403	6.40%		7.8	148	6.9	395	6.13%
	7.7	220	7.1	403	6.40%		7.7	149	6.9	395	6.13%
	7.8	240	7.1	403	6.40%		7.7	154	6.9	395	6.13%
	7.7	241	7.1	403	6.40%		7.5	155	6.9	395	6.13%
	7.6	267	7.1	403	6.40%		7.5	157	6.9	395	6.13%
	7.7	270	7.1	403	6.40%		7.5	158	6.9	395	6.13%
	7.8	280	7.1	403	6.40%		7.5	159	6.9	395	6.13%

	7.8	281	7.1	403	6.40%
	7.5	282	7.1	403	6.40%
	7.5	384	7.1	403	6.40%
	7.6	385	7.1	403	6.40%
Mar 97	7.5	386	7.1	403	6.40%
	7.4	387	7.1	403	6.40%
	7.4	2	7	426	1.99%
	7.3	16	7	426	1.99%
	7.2	17	7	426	1.99%
	7.4	18	7	426	1.99%
	7.4	19	7	426	1.99%
	7.6	35	7	426	1.99%
	7.6	187	7	426	1.99%
	7.7	192	7	426	1.99%
	7.7	193	7	426	1.99%
	7.9	199	7	426	1.99%
	7.6	207	7	426	1.99%
	7.7	213	7	426	1.99%
	7.4	214	7	426	1.99%
	7.5	222	7	426	1.99%
	7.6	225	7	426	1.99%
	7.6	226	7	426	1.99%
	7.5	227	7	426	1.99%
	7.4	228	7	426	1.99%
	7.7	242	7	426	1.99%
	7.8	268	7	426	1.99%
	7.7	134	6.9	446	0.66%
	7.5	159	6.9	446	0.66%
	7.6	180	6.9	446	0.66%
	7.4	223	6.9	446	0.66%
	7.6	224	6.9	446	0.66%
	7.6	269	6.9	446	0.66%
	7.7	158	6.8	452	0.00%
	7.6	182	6.8	452	0.00%
	7.4	208	6.8	452	0.00%

	7.7	180	6.9	395	6.13%
	7.6	181	6.9	395	6.13%
	7.7	183	6.9	395	6.13%
	7.7	184	6.9	395	6.13%
	7.6	190	6.9	395	6.13%
	7.6	192	6.9	395	6.13%
	7.6	208	6.9	395	6.13%
	7.6	209	6.9	395	6.13%
	7.7	210	6.9	395	6.13%
Apr 97	7.5	211	6.9	395	6.13%
	7.6	212	6.9	395	6.13%
	7.7	102	6.8	431	0.44%
	7.7	130	6.8	431	0.44%
	7.6	131	6.8	431	0.44%
	7.7	132	6.8	431	0.44%
	7.5	138	6.8	431	0.44%
	7.6	139	6.8	431	0.44%
	7.7	140	6.8	431	0.44%
	7.7	144	6.8	431	0.44%
	7.6	145	6.8	431	0.44%
	7.6	150	6.8	431	0.44%
	7.8	151	6.8	431	0.44%
	7.5	163	6.8	431	0.44%
	7.5	178	6.8	431	0.44%
	7.6	179	6.8	431	0.44%
	7.7	180	6.8	431	0.44%
	7.7	187	6.8	431	0.44%
	7.8	188	6.8	431	0.44%
	7.8	189	6.8	431	0.44%
	7.8	191	6.8	431	0.44%
	7.6	194	6.8	431	0.44%
	7.7	195	6.8	431	0.44%
	7.4	196	6.8	431	0.44%
	7.6	197	6.8	431	0.44%
	7.5	198	6.8	431	0.44%
	7.6	199	6.8	431	0.44%
	7.6	307	6.8	431	0.44%
	7.7	193	6.5	457	0.00%
	7.7	306	6.5	457	0.00%

2013 Ammonia Calculation

Ammonia April - October

3/27/2013 4:59:59 PM

Facility = Colchester (April - October)
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 19.9
WLAc = 2.11
Q.L. = .2
# samples/mo. = 12
# samples/wk. = 3

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 4.25728389710842
Average Weekly limit = 3.11396348531792
Average Monthly LImit = 2.31949578712648

The data are:

9

Attachment 6

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (April through October)

Month/ Year	Day	pH	Temperature °C
Apr-10	1	7.1	15
	2	7.2	17
	3	7.3	17
	4	7..4	17
	5	7.2	16
	6	7.5	17
	7	6.9	18
	8	7	20
	9	6.5	16
	10	7	16
	11	7.2	16
	12	7.1	16
	13	7	16
	14	7	13
	15	6.9	12
	16	7	13
	17	7.2	15
	18	7.1	12
	19	7.3	12
	20	7	14
	21	7.1	14
	22	7.2	14
	23	7.1	16
	24	6.8	16
	25	6.7	17
	26	7	16
	27	7.1	14
	28	7.5	13
	29	7.6	16
	30	7.5	15
May-10	1	7.1	15
	2	7.2	16
	3	7.5	15
	4	7.6	15
	5	6.5	19
	6	7.1	22
	7	7.1	20
	8	7.2	19
	9	7.1	19
	10	6.5	15
	11	7.1	14
	12	7.3	15
	13	7.2	17
	14	6.9	19
	15	7.1	18
	16	7.1	16
	17	7.2	14
	18	7.1	13

Month/ Year	Day	pH	Temperature °C
May-10	19	7.3	13
	20	7.1	17
	21	6.7	17
	22	7.1	19
	23	6.6	20
	24	7.3	19
	25	7.2	19
	26	7.3	19
	27	7.1	20
	28	7.1	19
	29	7.1	19
	30	7.1	20
	31	7.1	20
Jun-10	1	7.2	21
	2	7.1	21
	3	6.9	21
	4	7.6	22
	5	7.1	23
	6	7.3	22
	7	6.8	20
	8	6.8	21
	9	6.9	21
	10	7.1	22
	11	7	20
	12	7.1	23
	13	7.3	23
	14	7.2	21
	15	7.3	21
	16	7.1	24
	17	7	23
	18	7.2	24
	19	7.3	24
	20	7.4	24
	21	7	23
	22	7	25
	23	7	24
	24	7.2	24
	25	7	23
	26	7	24
	27	7.2	25
	28	7.1	25
	29	7.3	25
	30	7.2	23
Jul-10	1	7	22
	2	7	22
	3	7.3	20
	4	7.1	25
	5	7.2	23

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (April through October)

Month/ Year	Day	pH	Temperature °C
Jul-10	6	6.7	25
	7	6.3	25
	8	7.2	22
	9	7.3	21
	10	7.3	22
	11	7.4	23
	12	7.2	23
	13	7.2	23
	14	7.2	22
	15	7.3	23
	16	7.2	22
	17	7.3	23
	18	7.2	22
	19	6.7	26
	20	7.1	25
	21	7.3	21
	22	7.1	22
	23	6.8	24
	24	7	23
	25	7.2	24
	26	7	26
	27	6.9	24
	28	7	23
	29	7.1	23
	30	7.2	22
	31	6.4	20
Aug-10	1	7.1	21
	2	7	23
	3	7.1	25
	4	7	24
	5	7.1	23
	6	7.2	23
	7	7.1	20
	8	7.4	22
	9	7.2	22
	10	7.3	25
	11	7.3	24
	12	7.2	23
	13	7.3	21
	14	7.1	23
	15	6.9	22
	16	7.2	22
	17	7	26
	18	7.3	24
	19	7.6	23
	20	7.5	21
	21	7.6	25
	22	7.5	24

Month/ Year	Day	pH	Temperature °C
Aug-10	23	7.2	24
	24	7.3	24
	25	7.4	22
	26	7.5	22
	27	7.4	21
	28	7.3	21
	29	7.4	24
	30	7.6	22
	31	7.7	23
Sep-10	1	7.4	23
	2	7.6	23
	3	7.5	22
	4	7.5	22
	5	7.6	21
	6	7.5	21
	7	7.3	22
	8	7.6	20
	9	7.4	20
	10	7.4	20
	11	7.5	19
	12	7.3	22
	13	7.1	21
	14	7.4	20
	15	7.3	20
	16	7.3	20
	17	7.2	21
	18	7.4	20
	19	7.5	19
	20	7.3	17
	21	7.2	17
	22	7.4	19
	23	7.5	21
	24	7.6	20
	25	7.4	21
	26	7.4	18
	27	7.5	18
	28	7.3	19
	29	7.4	18
	30	7.5	19
Apr-11	1	7.09	12.6
	2	7.29	12.6
	3	7.08	14.8
	4	6.98	14
	5	7.12	16.1
	6	7.67	14.1
	7	6.9	13.4
	8	7.5	14
	9	7.49	13.9

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (April through October)

Month/ Year	Day	pH	Temperature °C
Apr-11	10	7.33	14.6
	11	7.46	15.6
	12	7.38	15.6
	13	7.24	13.6
	14	7.19	13.5
	15	7.36	14
	16	6.99	12.9
	17	7.11	13.4
	18	7.39	14.5
	19	7.7	16.1
	20	7.64	16
	21	7.67	16.3
	22	7.74	15.8
	23	7.6	13.5
	24	7.48	14.8
	25	7.4	17.9
	26	7.19	19.8
	27	7.25	21.1
	28	7.79	21.9
	29	7.42	21.2
	30	7.53	24.7
May-11	1	7.23	17
	2	7.67	16.4
	3	8.04	18.5
	4	7.76	16.4
	5	7.09	14.8
	6	7.03	15.3
	7	7.19	16.4
	8	7.27	15.3
	9	6.88	16.9
	10	6.72	17.3
	11	6.81	17.1
	12	6.22	18.1
	13	6.43	17.7
	14	7	17.9
	15	6.97	19.3
	16	7.38	19.7
	17	7.02	18.2
	18	7.7	19.7
	19	6.54	18.7
	20	6.74	18.4
	21	7.76	18.5
	22	734	18.5
	23	7.37	20.5
	24	6.18	21.5
	25	7.37	21.8
	26	7.03	20.6
	27	7.64	22

Month/ Year	Day	pH	Temperature °C
May-11	28	7.08	23.8
	29	7.13	27.9
	30	7.01	26.9
	31	7.57	24.6
Jun-11	1	7.34	25
	2	6.41	24.1
	3	6.89	24.4
	4	6.91	23.2
	5	6.89	23.6
	6	6.77	24.5
	7	7.97	22.6
	8	7.69	24.4
	9	7.5	25.5
	10	7.04	25.7
	11	7.12	28
	12	7.16	28.1
	13	7.01	24.9
	14	7	23.7
	15	7.41	20.7
	16	7.5	20.9
	17	7.37	25
	18	7.11	20.6
	19	7.44	21.5
	20	7.13	22.6
	21	6.87	23.1
	22	6.94	24.2
	23	7.01	24.5
	24	7	23.8
	25	7.11	24.7
	26	6.99	23.9
	27	6.87	24.1
	28	6.42	23.7
	29	7.39	23.1
	30	7.06	22.1
Jul-11	1	7.22	22.7
	2	7.03	23.9
	3	7.13	25
	4	6.91	23.2
	5	6.89	23.9
	6	6.85	23.9
	7	6.74	23.9
	8	7.08	23.7
	9	7.01	26.2
	10	7	26.3
	11	7.18	23.9
	12	7.2	23.4
	13	7.5	25.4
	14	7.39	23.9

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (April through October)

Month/ Year	Day	pH	Temperature °C
Jul-11	15	7.41	23.1
	16	7.5	24.4
	17	7.41	26.3
	18	7.37	23.4
	19	7.02	24.4
	20	6.97	26.3
	21	7.13	25.1
	22	7.04	26.4
	23	7.01	27.2
	24	7.05	26.1
	25	7.5	27
	26	6.97	24.1
	27	7.13	21.6
	28	6.24	25.2
	29	7.12	25.1
	30	1.19	25.4
	31	7.01	26.3
Aug-11	1	6.39	26.1
	2	6.89	25.8
	3	7.01	23.5
	4	6.33	25.8
	5	7.01	23.8
	6	7.09	24.3
	7	7.12	25.1
	8	7.08	25
	9	7.78	28.9
	10	6.89	26.1
	11	7.04	25.4
	12	7.13	25.3
	13	7.02	25.8
	14	7.01	25.4
	15	7.13	25.3
	16	7.08	25.2
	17	6.89	25.3
	18	7.01	25.4
	19	6.94	25.1
	20	6.96	25.4
	21	6.97	25.2
	22	6.84	25.6
	23	7.03	22.8
	24	7.13	24.7
	25	6.89	25.3
	26	6.06	25.5
	27	6.81	25.1
	28	6.97	25.3
	29	7.02	25.1
	30	7	25.1
	31	6.81	25.3

Month/ Year	Day	pH	Temperature °C
Sep-11	1	6.89	28.3
	2	6.95	25.3
	3	7	27.6
	4	6.9	25.5
	5	7.04	25.7
	6	7	25.7
	7	7.09	26.3
	8	6.99	25.1
	9	6.63	25.4
	10	6.88	25.1
	11	7.1	25.1
	12	7.01	25.2
	13	7.46	25.1
	14	7.45	23
	15	7.37	25.3
	16	7.26	26.4
	17	7.02	23.9
	18	6.99	23.9
	19	7.2	22.4
	20	7.01	21.8
	21	6.99	22.1
	22	6.9	24.1
	23	6.99	23.8
	24	7.03	23.7
	25	7.07	14.1
	26	6.84	24.3
	27	7.02	24.3
	28	6.88	24.3
	29	7.76	23.4
	30	7.75	23
Oct-11	1	6.98	20
	2	7.05	20.2
	3	7.02	19.4
	4	7.13	16.3
	5	7.2	16.1
	6	7.18	16.9
	7	7.11	16.1
	8	7.08	16.3
	9	7.19	16.2
	10	7.08	16.1
	11	7.1	16.2
	12	7.11	16.3
	13	7.17	16.7
	14	7.05	16.9
	15	7.02	17
	16	7	16.4
	17	6.92	16.5
	18	7.05	16.3

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (April through October)

Month/ Year	Day	pH	Temperature °C
Oct-11	19	7	15.8
	20	1	
	21	7.05	15.3
	22	7.19	15.3
	23	6.89	15.1
	24	7.01	15.3
	25	6.98	15
	26	7.01	15.3
	27	7.1	15.4
	28	7.07	14.6
	29	7.03	17.2
	30	7	13.8
	31	7.04	13.5
Apr-12	1	7.1	15.1
	2	7.03	15.1
	3	6.8	15.1
	4	6.91	15.1
	5	7.04	14.9
	6	7.09	15.1
	7	7.06	15.4
	8	7	15.6
	9	7.1	15.4
	10	6.53	15.6
	11	6.66	15.3
	12	7.09	15.1
	13	7.08	15
	14	7.05	15.9
	15	7	16.2
	16	7.01	15.8
	17	7.13	15.9
	18	6.85	15.6
	19	6.91	16.1
	20	7.07	15.9
	21	7	16.3
	22	7.09	15.8
	23	7.13	15.3
	24	7.1	15
	25	7.19	15
	26	7.03	14.7
	27	7.07	15.6
	28	7.05	14.9
	29	6.54	15.6
	30	6.94	15.4
May-12	1	7.2	15.6
	2	7.18	16.1
	3	7.38	15.8
	4	7.229	15.5
	5	7.32	15.4

Month/ Year	Day	pH	Temperature °C
May-12	6	7.16	16.3
	7	726	16.2
	8	7.18	15.3
	9	6.51	14.7
	10	7.33	15.7
	11	7.07	14.5
	12	7.09	16.1
	13	7.08	16
	14	6.86	15
	15	6.91	15.4
	16	6.84	15.6
	17	6.91	15.8
	18	7.09	15.9
	19	7.01	15.6
	20	6.99	15.6
	21	6.84	15.5
	22	7.16	15.3
	23	7.24	15.9
	24	7.16	16
	25	7.02	16.9
	26	7.01	16.9
	27	6.88	17.1
	28	7.02	17.3
	29	7.04	16.8
	30	6.57	15.7
	31	6.92	
Jun-12	1	7	15.8
	2	7.06	15.8
	3	6.98	15.7
	4	6.91	15.5
	5	6.87	17.1
	6	6.81	
	7	6.93	18.5
	8	7.04	17
	9	7.06	17.5
	10	7.05	17.2
	11	7.01	17.4
	12	6.91	17.2
	13	6.9	18.5
	14	7.09	17.4
	15	6.48	22.6
	16	6.51	22.5
	17	6.66	23.3
	18	6.57	22.4
	19	6.62	22.3
	20	6.47	24.1
	21	6.59	23.9
	22	7.12	28.9

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (April through October)

Month/ Year	Day	pH	Temperature °C
Jun-12	23	7.19	25.1
	24	7.04	25.3
	25	7.09	25
	26	6.3	22.8
	27	6.59	22.5
	28	6.71	21.1
	29	6.59	22.1
	30	6.74	23.3
Jul-12	1	7.04	23.5
	2	6.35	25.5
	3	6.95	25.3
	4	6.87	25.1
	5	6.57	24.9
	6	6.45	24.2
	7	6.63	24.1
	8	6.84	24.2
	9	6.54	24.3
	10	6.85	25
	11	7.1	24.2
	12	7.01	24.1
	13	6.56	24.5
	14	6.74	24.1
	15	6.97	23.9
	16	6.98	25.1
	17	6.82	24.5
	18	6.85	25.7
	19	6.54	24.9
	20	6.89	24.3
	21	7	23.3
	22	7.26	22.4
	23	7.13	23.2
	24	6.88	24.9
	25	7.22	26.3
	26	6.91	26.1
	27	6.49	24.8
	28	7.01	26.9
	29	7.13	
	30	6.1	24.6
	31	6.21	24
Aug-12	1	7.34	25.2
	2	6.96	24.5
	3	6.89	24.4
	4	6.91	24.9
	5	7.08	24.1
	6	6.79	25.8
	7	7.08	25.2
	8	7.1	25.4
	9	6.81	25.6

Month/ Year	Day	pH	Temperature °C
Aug-12	10	7.01	26.2
	11	7.04	25.3
	12	6.37	24.8
	13	6.45	24.8
	14	6.59	24.7
	15	6.68	24.3
	16	6.94	25.1
	17	6.81	27.4
	18	6.71	27.6
	19	7.01	28
	20	7	28.1
	21	6.84	27.6
	22	6.91	28.6
	23	7.19	28.4
	24	6.91	27.7
	25	6.84	28.6
	26	7.2	28.4
	27	7.18	27.9
	28	6.84	28.7
	29	7.01	28.7
	30	7.1	28.4
	31	6.8	27.1
Sep-12	1	7.01	27.6
	2	6.94	26.9
	3	6.74	27.6
	4	7.04	27.5
	5	7.2	27.7
	6	6.91	27
	7	6.97	28.2
	8	6.72	27.1
	9	7.25	26.5
	10	7.18	25.2
	11	7.4	24.8
	12	6.87	25.3
	13	6.9	25.4
	14	6.98	25.3
	15	7.15	26.1
	16	7.09	24.5
	17	6.15	23.1
	18	6.21	24.3
	19	6.34	29.4
	20	7.54	20.3
	21	6.36	19.1
	22	7.2	20.4
	23	7.02	20
	24	7.68	20.3
	25	7.3	24.9
	26	7.16	24.8

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (April through October)

Month/ Year	Day	pH	Temperature °C
Sep-12	27	6.97	24.6
	28	6.99	24.4
	29	7.01	23.9
	30	6.92	24.4

90th pH Percentile = 7.464 SU

90th Temperature Percentile = 25.75°C

2013 Ammonia Calculations

5/21/2013 4:55:25 PM

Facility = Colchester November - January (No Early Life)
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 170
WLAc = 2.62
Q.L. = .2
# samples/mo. = 12
# samples/wk. = 3

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 5.28629564475073
Average Weekly limit = 3.86662764527628
Average Monthly LImit = 2.88013220960729

The data are:

9

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (November - January)

Month/ Year	Day	pH	Temperature °C
Jan-10	1	6	11
	2	6.9	16
	3	6.9	12
	4	6.6	10
	5	7.5	10
	6	7.4	12
	7	7.2	10
	8	6.8	11
	9	6.7	11
	10	7	11
	11	7.5	9
	12	7.8	13
	13	7.8	11
	14	7.4	10
	15	7.9	10
	16	7.2	11
	17	7.4	11
	18	7.2	14
	19	7.4	13
	20	7.3	14
	21	7.3	11
	22	7.5	11
	23	7.3	10
	24	7.6	15
	25	7.4	16
	26	7.4	14
	27	7.3	12
	28	7.2	14
	29	7.5	12
	30	7.4	12
	31	7	11
Nov-10	1	7.5	15
	2	7.4	10
	3	7.5	19
	4	7.5	17
	5	7.1	16
	6	7.4	16
	7	7.3	15
	8	7.6	16
	9	7.5	17
	10	7.6	16
	11	7.6	21
	12	7.2	15
	13	7.3	14
	14	7.2	14
	15	7.1	15
	16	7	15
	17	7.4	15

Month/ Year	Day	pH	Temperature °C
Nov-10	18	7.6	15
	19	7.6	17
	20	7.9	15
	21	7.8	15
	22	7.7	18
	23	7.6	17
	24	7.7	14
	25	7.6	15
	26	7.3	14
	27	7.5	14
	28	7.4	14
	29	7.5	13
	30	7.6	13
Dec-10	1	7.7	15
	2	7.6	13
	3	7.5	13
	4	7.6	15
	5	7.7	16
	6	7.6	15
	7	7.2	13
	8	7.1	12
	9	7.7	10
	10	7.2	12
	11	7.3	13
	12	7.5	16
	13	7.5	10
	14	7.9	12
	15	7.8	14
	16	7.6	8
	17	7.6	8
	18	7.6	8
	19	7.7	8
	20	7.8	9
	21	7.6	9
	22	7.5	14
	23	7.6	8
	24	7.7	16
	25	7.5	10
	26	7.3	8
	27	7.4	10
	28	7.5	9
	29	7.6	10
	30	7.7	9
	31	7.5	10
Jan-11	1	7.6	10
	2	7.4	11
	3	7.6	9

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (November - January)

Month/ Year	Day	pH	Temperature °C
Jan-11	4	7.6	9
	5	7.5	9
	6	7.6	8
	7	7.5	8
	8	7.6	7
	9	7.6	6
	10	7.4	10
	11	7.4	7
	12	7.3	6
	13	7.5	6
	14	7.6	6
	15	7.5	7
	16	7.2	7
	17	7.3	8
	18	7.4	6
	19	7.3	7
	20	7.6	7
	21	7.6	9
	22	7.4	6
	23	7.3	6
	24	7.4	4
	25	7.3	5
	26	7.2	4
	27	7.3	5
	28	7.3	4
	29	7.2	4
	30	7.4	6
	31	7.4	3
Nov-11	1	7.02	13.6
	2	7.05	13.5
	3	6.98	13.6
	4	7	13.7
	5	7.03	13.1
	6	7.04	13.3
	7	7.88	18
	8	7.71	18.1
	9	7.74	18.1
	10	7	18
	11	7.11	12.4
	12	7	12.7
	13	6.81	13.1
	14	7.04	13.4
	15	7.24	13.9
	16	7.13	13.3
	17	7.21	13.1
	18	7.3	12.9
	19	7.34	12.9
	20	7.71	13.6

Month/ Year	Day	pH	Temperature °C
Nov-11	21	6.95	13.1
	22	6.97	13
	23	7.04	13.1
	24	7.01	12.5
	25	7.07	12.5
	26	7.14	12.4
	27	6.99	12.5
	28	7.13	12.5
	29	7.08	12.6
	30	6.81	12.3
Dec-11	1	6.94	13.3
	2	7.06	15.1
	3	7.09	15.1
	4	7.08	15.3
	5	7.13	15.2
	6	7.2	15.4
	7	7.01	14.7
	8	6.98	13.7
	9	7.12	12.9
	10	6.97	12.4
	11	7	12.5
	12	7.06	11.8
	13	7.08	11.9
	14	7.19	11.7
	15	7.16	12.3
	16	7.13	11.5
	17	7.19	12.4
	18	7.08	12.3
	19	7.1	12.4
	20	7.06	13.7
	21	7.11	13.4
	22	7	13.8
	23	6.86	12.6
	24	6.95	13.4
	25	6.99	12.6
	26	6.87	13.3
	27	6.89	13.5
	28	6.84	13.3
	29	6.97	13.4
	29	6.97	13.4
	30	6.99	13.7
	31	7.01	14.6
Jan-12	1	6.94	15.2
	2	6.91	15.1
	3	7.03	15.3
	4	7.07	15.4
	5	7.04	14.8
	6	7.18	14.8

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (November - January)

Month/ Year	Day	pH	Temperature °C
Jan-12	7	7.04	15.1
	8	6.89	14.9
	9	7.05	15.1
	10	7.09	15.3
	11	7.08	14.7
	12	7.09	15.3
	13	7.11	14.2
	14	7.1	14
	15	7.08	14.1
	16	7.06	13.1
	17	7.08	14.1
	18	7.1	14.9
	19	7	13.5
	20	7.05	14
	21	7.08	13.4
	22	7.1	13
	23	7.05	13.1
	24	7.01	14.1
	25	6.98	13.3
	26	7.01	14.1
	27	7.08	15.3
	28	7.07	14.3
	29	7.12	14.2
	30	6.99	15.9
	31	7.12	15.8

90th Percentile Temperature = 15.6°C

90th Percentile pH = 7.6 SU

2013 Ammonia Calculations

5/21/2013 4:56:42 PM

Facility = Colchester Feb March Early Life
Chemical = ammonia
Chronic averaging period = 30
WLAa = 230
WLAc = 4.33
Q.L. = .2
# samples/mo. = 12
# samples/wk. = 3

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 8.73651150449263
Average Weekly limit = 6.39026629925431
Average Monthly LImit = 4.75991315557235

The data are:

9

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (February - March)

Month/ Year	Day	pH	Temperature °C
Feb-10	1	7.3	9
	2	7	10
	3	7.1	11
	4	6.8	11
	5	7.2	13
	6	6.7	11
	7	7	10
	8	7.1	9
	9	6.7	9
	10	7.1	11
	11	7	11
	12	6.9	10
	13	6.8	9
	14	6.7	10
	15	7.1	10
	16	7.3	12
	17	7.2	11
	18	7.2	12
	19	7.5	11
	20	6.8	12
	21	7.6	12
	22	6.9	11
	23	7	11
	24	7	13
	25	7.5	12
	26	6.7	11
	27	7.3	11
	28	7.2	13
Mar-10	1	7	14
	2	6.3	12
	3	7.4	13
	4	7.4	13
	5	7.2	13
	6	7.1	13
	7	7.3	15
	8	7.4	10
	9	7.4	13
	10	7.3	14
	11	7.3	16
	12	6.8	15
	13	7.5	15
	14	7.3	15
	15	7.2	14
	16	7.4	15
	17	7.1	12
	18	7.2	12
	19	7	14
	20	7.2	13

Month/ Year	Day	pH	Temperature °C
Mar-11	21	7.3	14
	22	7.1	17
	23	7.2	13
	24	6.8	14
	25	7.2	13
	26	7.2	17
	27	7.1	15
	28	7.9	16
	29	7.2	16
	30	7	16
	31	7	16
Feb-11	1	7.5	4
	2	7.5	7
	3	7.3	3
	4	7.4	3
	5	7.2	7
	6	7.2	4
	7	7.4	5
	8	73	6
	9	7.5	3
	10	7.6	2
	11	7.4	2
	12	7.5	4
	13	7.4	4
	14	7.2	7
	15	7.3	6
	16	7.4	6
	17	7.5	10
	18	7.1	11
	19	7.3	11
	20	7.2	8
	21	6.1	12.1
	22	7.1	9.6
	23	7.2	11.3
	24	6.35	9.6
	25	6.53	11.9
	26	7.1	11.2
	27	7.1	11
	28	6.6	11
Mar-11	1	7.16	9.9
	2	7.76	11.8
	3	6.32	11.5
	4	6.61	9.9
	5	6.98	11.9
	6	6.41	12
	7	6.65	10.2
	8	6.97	10.6
	9	6.92	13.1

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (February - March)

Month/ Year	Day	pH	Temperature °C
Mar-11	10	6.79	15.4
	11	6.66	14.5
	12	6.88	14.1
	13	6.91	14
	14	6.87	13.9
	15	7.13	13
	16	7.25	14.3
	17	7.22	14.7
	18	7.33	14.2
	19	7.23	16
	20	7.11	16
	21	7.02	12.7
	22	3.39	16
	23	7.11	16.1
	24	7.06	14.5
	25	7.13	13.9
	26	6.99	14
	27	7.03	13.7
	28	7.23	11.5
	29	6.78	8.9
	30	7.4	12
	31	7.36	12.1
Feb-12	1	7.08	14
	2	7.16	14.2
	3	7.05	15.3
	4	7.07	14.5
	5	7.06	14.8
	6	7.03	14.6
	7	6.55	13.5
	8	6.62	14.9
	9	6.39	14.4
	10	6.59	14.3
	11	6.62	14.1
	12	6.94	13.1
	13	6.67	12.3
	14	6.63	12.9
	15	6.67	15
	16	7.44	15
	17	7.28	14.8
	18	7.15	15.1
	19	6.87	15
	20	6.46	15.4
	21	6.31	13.6
	22	6.44	13.8
	23	7.08	15.3
	24	6.97	15.4
	25	7	15.2
	26	6.98	15.4

Month/ Year	Day	pH	Temperature °C
Feb-12	27	7.02	14.1
	28	7.15	14.1
	29	6.65	13.4
Mar-12	1	6.81	16.3
	2	6.99	15.9
	3	6.95	15.6
	4	6.91	14.6
	5	6.7	15.3
	6	6.63	15.1
	7	6.59	15.3
	8	6.97	15.4
	9	7.78	15.6
	10	7.59	15.1
	11	7.4	15.2
	12	6.82	15.9
	13	6.57	15.4
	14	6.66	15.2
	15	7.04	15.7
	16	7.06	15
	17	6.995	16.3
	18	7	16.1
	19	7.06	15.9
	20	7.11	15.5
	21	7.02	16.2
	22	6.89	21
	23	6.97	16.5
	24	6.98	16.1
	25	7.09	15.2
	26	7.19	15.3
	27	7.223	15
	28	6.74	15
	29	7.05	15
	30	7.05	15.1
	31	7.05	15.3

90th Percentile Temperarture 15.9 °C

90th Percentile pH 7.4 SU

Calculation of Special Standard Y
Using pH value of 7.6 SU and max Temperature value of 21°C

$$\left(\frac{0.0577}{1 + 10^{7.688-pH}} + \frac{2.487}{1 + 10^{pH-7.688}} \right) \times 1.45(10^{0.028(25-MAX)})$$

MAX = temperature in °C or 7, whichever is greater.

$$\left(\frac{0.0577}{1 + 10^{7.688-7.6}} + \frac{2.487}{1 + 107^{7.6-7.688}} \right) \times 1.45(10^{0.028(25-21)})$$

$$\left(\frac{0.0577}{1 + 10^{0.088}} + \frac{2.487}{1 + 10^{-0.088}} \right) \times 1.45(10^{0.028(4)})$$

$$\left(\frac{0.0577}{1 + 1.226} + \frac{2.487}{1 + 0.816} \right) \times 1.45(10^{-0.112})$$

$$\left(\frac{0.0577}{2.226} + \frac{2.487}{1.816} \right) \times 1.45(1.294)$$

$(0.026 + 1.369) \times 1.876$

1.395×1.876

$2.617 = 2.62$

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (November - February 14)

Month/ Year	Day	pH	Temperature °C
Jan-10	1	6	11
	2	6.9	16
	3	6.9	12
	4	6.6	10
	5	7.5	10
	6	7.4	12
	7	7.2	10
	8	6.8	11
	9	6.7	11
	10	7	11
	11	7.5	9
	12	7.8	13
	13	7.8	11
	14	7.4	10
	15	7.9	10
	16	7.2	11
	17	7.4	11
	18	7.2	14
	19	7.4	13
	20	7.3	14
	21	7.3	11
	22	7.5	11
	23	7.3	10
	24	7.6	15
	25	7.4	16
	26	7.4	14
	27	7.3	12
	28	7.2	14
	29	7.5	12
	30	7.4	12
	31	7	11
Feb-10	1	7.3	9
	2	7	10
	3	7.1	11
	4	6.8	11
	5	7.2	13
	6	6.7	11
	7	7	10
	8	7.1	9
	9	6.7	9
	10	7.1	11
	11	7	11
	12	6.9	10
	13	6.8	9
	14	6.7	10
Nov-10	1	7.5	15
	2	7.4	10
	3	7.5	19

Month/ Year	Day	pH	Temperature °C
Nov-10	4	7.5	17
	5	7.1	16
	6	7.4	16
	7	7.3	15
	8	7.6	16
	9	7.5	17
	10	7.6	16
	11	7.6	21
	12	7.2	15
	13	7.3	14
	14	7.2	14
	15	7.1	15
	16	7	15
	17	7.4	15
	18	7.6	15
	19	7.6	17
	20	7.9	15
	21	7.8	15
	22	7.7	18
	23	7.6	17
	24	7.7	14
	25	7.6	15
	26	7.3	14
	27	7.5	14
	28	7.4	14
	29	7.5	13
	30	7.6	13
Dec-10	1	7.7	15
	2	7.6	13
	3	7.5	13
	4	7.6	15
	5	7.7	16
	6	7.6	15
	7	7.2	13
	8	7.1	12
	9	7.7	10
	10	7.2	12
	11	7.3	13
	12	7.5	16
	13	7.5	10
	14	7.9	12
	15	7.8	14
	16	7.6	8
	17	7.6	8
	18	7.6	8
	19	7.7	8
	20	7.8	9
	21	7.6	9

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (November - February 14)

Month/ Year	Day	pH	Temperature °C
Dec-10	22	7.5	14
	23	7.6	8
	24	7.7	16
	25	7.5	10
	26	7.3	8
	27	7.4	10
	28	7.5	9
	29	7.6	10
	30	7.7	9
	31	7.5	10
Jan-11	1	7.6	10
	2	7.4	11
	3	7.6	9
	4	7.6	9
	5	7.5	9
	6	7.6	8
	7	7.5	8
	8	7.6	7
	9	7.6	6
	10	7.4	10
	11	7.4	7
	12	7.3	6
	13	7.5	6
	14	7.6	6
	15	7.5	7
	16	7.2	7
	17	7.3	8
	18	7.4	6
	19	7.3	7
	20	7.6	7
	21	7.6	9
	22	7.4	6
	23	7.3	6
	24	7.4	4
	25	7.3	5
	26	7.2	4
	27	7.3	5
	28	7.3	4
	29	7.2	4
	30	7.4	6
	31	7.4	3
Feb-11	1	7.5	4
	2	7.5	7
	3	7.3	3
	4	7.4	3
	5	7.2	7
	6	7.2	4
	7	7.4	5

Month/ Year	Day	pH	Temperature °C
Feb-11	8	73	6
	9	7.5	3
	10	7.6	2
	11	7.4	2
	12	7.5	4
	13	7.4	4
	14	7.2	7
Nov-11	1	7.02	13.6
	2	7.05	13.5
	3	6.98	13.6
	4	7	13.7
	5	7.03	13.1
	6	7.04	13.3
	7	7.88	18
	8	7.71	18.1
	9	7.74	18.1
	10	7	18
	11	7.11	12.4
	12	7	12.7
	13	6.81	13.1
	14	7.04	13.4
	15	7.24	13.9
	16	7.13	13.3
	17	7.21	13.1
	18	7.3	12.9
	19	7.34	12.9
	20	7.71	13.6
	21	6.95	13.1
	22	6.97	13
	23	7.04	13.1
	24	7.01	12.5
	25	7.07	12.5
	26	7.14	12.4
	27	6.99	12.5
	28	7.13	12.5
	29	7.08	12.6
	30	6.81	12.3
Dec-11	1	6.94	13.3
	2	7.06	15.1
	3	7.09	15.1
	4	7.08	15.3
	5	7.13	15.2
	6	7.2	15.4
	7	7.01	14.7
	8	6.98	13.7
	9	7.12	12.9
	10	6.97	12.4
	11	7	12.5

Colchester Utilities Wastewater Treatment Plant's pH and Temperature Daily Values for January 2010 through September 2012 (November - February 14)

Month/ Year	Day	pH	Temperature °C
Dec-11	12	7.06	11.8
	13	7.08	11.9
	14	7.19	11.7
	15	7.16	12.3
	16	7.13	11.5
	17	7.19	12.4
	18	7.08	12.3
	19	7.1	12.4
	20	7.06	13.7
	21	7.11	13.4
	22	7	13.8
	23	6.86	12.6
	24	6.95	13.4
	25	6.99	12.6
	26	6.87	13.3
	27	6.89	13.5
	28	6.84	13.3
	29	6.97	13.4
	30	6.99	13.7
	31	7.01	14.6
Jan-12	1	6.94	15.2
	2	6.91	15.1
	3	7.03	15.3
	4	7.07	15.4
	5	7.04	14.8
	6	7.18	14.8
	7	7.04	15.1
	8	6.89	14.9
	9	7.05	15.1
	10	7.09	15.3
	11	7.08	14.7
	12	7.09	15.3
	13	7.11	14.2
	14	7.1	14
	15	7.08	14.1
	16	7.06	13.1
	17	7.08	14.1
	18	7.1	14.9
	19	7	13.5
	20	7.05	14
	21	7.08	13.4
	22	7.1	13
	23	7.05	13.1
	24	7.01	14.1
	25	6.98	13.3
	26	7.01	14.1
	27	7.08	15.3
	28	7.07	14.3

Month/ Year	Day	pH	Temperature °C
Jan-12	29	7.12	14.2
	30	6.99	15.9
	31	7.12	15.8
Feb-12	1	7.08	14
	2	7.16	14.2
	3	7.05	15.3
	4	7.07	14.5
	5	7.06	14.8
	6	7.03	14.6
	7	6.55	13.5
	8	6.62	14.9
	9	6.39	14.4
	10	6.59	14.3
	11	6.62	14.1
	12	6.94	13.1
	13	6.67	12.3
	14	6.63	12.9

Maximum Temperature = 21°C

90th Percentile pH = 7.6 SU

2013 TRC calculation

4/16/2013 3:41:13 PM

Facility = Colchester
Chemical = Total Residual Chlorine
Chronic averaging period = 4
WLAa = 19
WLAc = 11
Q.L. = 100
# samples/mo. = 90
# samples/wk. = 23

Summary of Statistics:

observations = 1
Expected Value = 200
Variance = 14400
C.V. = 0.6
97th percentile daily values = 486.683
97th percentile 4 day average = 332.758
97th percentile 30 day average= 241.210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 16.0883226245855
Average Weekly limit = 8.2932988083132
Average Monthly LImit = 7.39793639872119

The data are:

Units of measurement are ug/L.

200

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Fairfax County, Virginia.

PUBLIC COMMENT PERIOD: XXX, 2013 to XXX, 2013

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Colchester Utilities, Incorporated P. O. Box 379, Dunkirk, Maryland 20754, VA0029416

NAME AND ADDRESS OF FACILITY: Colchester Utilities, Inc. WWTP 10609 Greene Drive, Lorton, VA 22079

PROJECT DESCRIPTION: Colchester Utilities, Inc. has applied for a reissuance of a permit for the private Colchester Utilities, Inc. WWTP. The applicant proposes to treated sewage wastewaters from residential areas at a rate of 0.080 million gallons per day into a water body. The sludge will be disposed by hauling it to Noman M. Cole, Jr. Pollution Control Plant (VA0025364) for incineration. The facility proposes to release the treated sewage wastewaters into Massey Creek in Fairfax County in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, $cBOD_5$, TSS, Ammonia as N, Dissolved Oxygen, *E. coli*, Chlorine, and Total Phosphorus.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by hand-delivery, e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.
Name: Joan C. Crowther
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3925 E-mail: joan.crowther@deq.virginia.gov Fax: (703) 583-3821